

# Test Specifications Fuel Injection Pumps ① and Governors

PES 6 P 80 A 720 LS 425 RQV 300-1000 PA 577-2  
Komb.-Nr. 9 400 087 323

supersedes-  
company: Caterpillar  
engine: 3306 NA  
91,9 kW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke <sup>1,95-2,05</sup>  
(1,90-2,10) mm (from BDC) ; cyl. 1; RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
990	12,0+0,1	9,7-9,8	0,25 (0,4)			
300	6,8-7,0	0,9-1,6	0,2 (0,35)			

Adjust the fuel delivery from each outlet according to the values in .

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min ①a ②a	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③	rev/min 10	mm 11
max.	1010	15,2-17,8	-	-	-	ca. 16	200 300 490-550=2,0	min.11,0 6,4-6,6	325 400 500 800 1010	0,5-2,0 2,7-3,1 3,5-4,2 6,1-6,6 8,5
ca. 69	11,0 4,0 1180	1020-1030 1090-1120 0-1,0				220-370 ③a				

Torque control travel a = 0,70 mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min ④a	rev/min 4	cm <sup>3</sup> /1000 strokes ⑤b	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
990	97,0-98,0 (95,5-99,5)	1020-1030*	500 700	101,0-103,0 (100,0-104,0) 103,0-105,0 (102,0-106,0)	100	152,0-172,0	990 500 700 850	12,0+0,1 12,7+0,1 12,5+0,2 12,2+0,3

Checking values in brackets

\* 1 mm less control rod travel than col. 2

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# Test Specifications Fuel Injection Pumps ① and Governors

PES 4 P 80 A 720 LS 440  
Komb.-Nr. 9 400 U87 327

RQV 350-950 PA 609-6

supersedes -  
company: Caterpillar  
engine: 3304-NA  
65,5 kW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\frac{1,95-2,05}{(1,90-2,10)}$  mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
950	11,7+0,1	9,1-9,2	0,25(0,4)			
350	6,7-6,9	0,9-1,4	0,2(0,35)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1010	15,2-17,8	-	-	-	ca. 19	250 350 540-600=2,0	min.11,0 6,3-6,5	325 400 500 800 1010	0,5-2,0 2,7-3,1 3,5-4,2 6,1-6,6 8,5
ca. 66	10,7 4,0 1150	980-990 1055-1085 0-1,0				300-400				

Torque control travel a =  $\frac{1}{2}, \frac{1}{3}$  mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
950	90,5-91,5 (88,5-93,5)	980-990*	500 700	95,5-97,5 (93,5-99,5) 100,0-102,0 (98,0-104,0)	100	152,0-172,0	950 500 700 800	11,7+0,1 12,5+0,1 12,4+0,2 12,0+0,3

Checking values in brackets

\* 1 mm less control rod travel than col. 2

# Test Specifications Fuel Injection Pumps ① and Governors

En

PES 4 P 80 A 720 LS 440  
Komb.-Nr. 9 400 087 328

RQV 350-1000 PA 613-2

supersedes  
company: Caterpillar  
3304-NA  
engine: 59,0 kW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\frac{1,95-2,05}{(1,90-2,10)}$  mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	11,6+0,1	9,0-9,1	0,25(0,4)			
350	6,7-6,9	0,9-1,3	0,2(0,35)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③	rev/min 10	mm 11
max.	1000	15,2-17,8	-	-	-	ca. 21	250	min.11,0	325	0,5-2,0
ca. 70	10,6 4,0 1180	1030-1040 1100-1130 0-1,0				300-400	350 550-610=2,0	6,5-6,7	400 500 800 1010	2,7-3,1 3,5-4,2 6,1-6,6 8,5

Torque control travel a = 0,5 mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5b	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
1000	90,0-91,0 (88,0-93,0)	1030-1040*	500 700	90,0-92,0 (87,5-94,5) 95,0-97,0 (92,5-99,5)	100	152,0-172,0	1000 500 700 850	11,6+0 1 12,1+0 1 12,0+0 2 11,7+0 3

Checking values in brackets

\* 1 mm less control rod travel than col. 2

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 CAT 7,0 a 3

1. Edition

En

PES 4 P 80 A 720 LS 440  
Komb.-Nr. 9 400 087 313

RQV 375-1100 PA 732

supersedes -  
company: Caterpillar  
engine: 3304-NA  
73,5 kW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\frac{1,95-2,05}{(1,90-2,10)}$  mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	13,0+0,1	11,2-11,3	0,2(0,35)			
375	6,7-6,9	1,0-1,7	0,2(0,3)			

Adjust the fuel delivery from each outlet according to the values in .

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③	rev/min 10	mm 11
max.	1130	15,2-17,8	-	-	-	ca. 19	250	min.10,0	350	0,7-1,6
ca. 68	12,1 4,0 1350	1130-1140 1230-1260 0-1,0				350-450	375 480-540=2,0	5,9-6,1	425 525 700 1130	2,6-3,1 3,7-4,3 5,0-5,5 8,5

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
1100	112,0-113,0 (110,5-114,5)	-	700	107,5-110,5 (106,5-111,5)	100	152,0-172,0	-	-

Checking values in brackets

\* 1 mm less control rod travel than col. 2

10.85

**BOSCH**

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# Test Specifications Fuel Injection Pumps ① and Governors

PES 6 P 80 A 720 LS 456  
Komb.-Nr. 9 400 087 321

RQV 350-1000 PA 755

supersedes -  
company: Caterpillar  
engine: 3306 T

Test ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $1,65-1,75$  mm (from BDC) ; cyl. 1; RW = 9,0-12,0 mm  
(1,60-1,80)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	13,1+0,1	11,9-12,0	0,25 (0,4)			
350	6,7-6,9	1,0-1,7	0,2 (0,35)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3a 2a	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 3	rev/min 10	mm 11
max.	1010	15,2-17,8	-	-	-	ca. 17	250	min. 11,0	325	0,5-2,0
ca. 70	12,1	1030-1040					350	5,9-6,1	400	2,7-3,1
	4,0	1110-1140					510-570 = 2,0		500	3,5-4,2
	1230	0 - 1,0				300-400			800	6,1-6,6
									1010	8,6

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1000	0,45 bar 118,5-119,5 (118,0-120,0)	1030-1040 *	LDA 800	0,45 bar 127,5-129,5 (125,5-131,5)	100	152,0-172,0	1000	13,1+0,1
LDA 600	0,45 bar 131,0-133,0 (129,0-135,0)		LDA 600	0 bar 108,5-110,5 (106,5-112,5)			600	14,4+0,1
							800	13,9+0,2

Checking values in brackets

\* 1 mm less control rod travel than col. 2

# D. Adjustment Test for Manifold Pressure Compensator

CAT 10,5 d - 2 -

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure  
 increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PES 6 P.. LS 456 + RQV .. PA 755	0,45	0 0,27	14,4-14,5 13,0-13,1 13,8-13,9

**Notes**

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

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# Test Specifications Fuel Injection Pumps ② and Governors

PE 6 P 120 A 320 RS 482 RQ 325/1000 PA 734  
 Komb.-Nr. 0 401 846 504  
 Values only apply to test nozzle-and-holder assembly  
 1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes -  
 company: Skoda  
 engine: M 2  
 270.0 kW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke <sup>2,2-2,3</sup>  
 (2,15-2,35) mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	14,1+0,1	24,6-24,8	0,5 (0,8)			
325	6,6-6,8	1,7-2,3	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Checking of slider PRG check rev/min 1		Control rod travel mm 2	Full-load speed regulation Setting point rev/min 3			Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Idle speed regulation Setting point rev/min 7		Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	Torque control rev/min 11		Control rod travel mm 12	
700	15,6-16,4	700	16,0	12,8	1045-1060	325	6,6	100	min.8,1	1000	13,8-13,9	700	14,8-14,9	790	14,5-14,7	865	14,0-14,3
				4,0	1115-1145			325	6,5-6,7								
				1250	0-1,0			485-525	=2,0								

Torque-control travel on flyweight assembly dimension a = 0,40 mm Speed regulation: At 1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		cm <sup>3</sup> /-1000 strokes 2	Control rod stop rev/min 3	Fuel delivery characteristics rev/min 4	cm <sup>3</sup> /-1000 strokes 5	Starting fuel delivery Idle speed rev/min 6	cm <sup>3</sup> /1000 strokes / mm Control rod travel 7
LDA 700	1,0 bar 246,0-248,0 (243,0-251,0)			LDA 1000	1,0 bar 240,0-244,0 (236,0-248,0)		

Checking values in brackets

# D. Adjustment Test for Manifold Pressure Compensator

SKO 13,7 a

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
 increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 P..RS 482 + RQ..PA 734	1,0	0 0,76 0,65	14,1-14,2 13,0-13,1 13,6-13,7 13,1-13,4

Notes

(1) when n = rev/min and gauge pressure = bar (- maximum full-load control rod travel)



# Test Specifications Fuel Injection Pumps ① and Governors

PE 6 P 110 A 320 RS 483  
Komb.-Nr. 0 401 846 505

RQV 250-1200 PA 499-1

supersedes  
company: Volvo  
engine: TD 71 F  
162,0 kW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke <sup>3,0-3,1</sup>  
(2,95-3,15) mm (from BDC); cyl. 1; RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,7+0,1	13,7-13,9	0,4(0,75)			2,4-2,6 (2,2-2,9)
250	5,1-5,3	1,6-2,0	0,3(0,6)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1200	15,2-17,8	-	-	-	ca. 9	100	min.6,6		
ca. 62	11,7 4,0 1500	1240-1250 1380-1410 0-1,0				300-410	250	5,1-5,3		

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5b	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 700	0,9 bar 137,0-139,0 (134,0-142,0)		LDA 700	0 bar 71,0-73,0 (68,0-76,0)	100	160,0-190,0 (160,0-190,0)	-	-

Checking values in brackets

\* 1 mm less control rod travel than col. 2

# D. Adjustment Test for Manifold Pressure Compensator

VOL 7,1 a

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
 increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 P..RS 483 + RQV..PA 499-1	0,9	0 0,60 0,11	12,7-12,8 8,9-9,0 12,2-12,3 9,2-9,4

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps ① and Governors.

PES 4 P 80 A 720 LS 852 RQV 350-1000 PA 609-5  
Komb.-Nr. 9 400 087 326

supersedes -  
company: Caterpillar  
engine: 3304 T  
78,7 kW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\begin{matrix} 1,65-1,75 \\ (1,60-1,80) \end{matrix}$  mm (from BDC) ; cyl. 1; RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12,2+0,1	10,7-10,8	0,25(0,35)			
350	6,7-6,9	1,0-1,7	0,2 (0,3)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③	rev/min 10	mm 11
max.	1010	15,2-17,8	-	-	-	ca. 17	350	min. 11,5	325	0,5-2,0
ca. 68	11,2 4,0 1200	1030-1040 1110-1140 0-1,0				320-420	350 530-590=	6,3-6,5 2,0	400 500 800 010	2,7-3,1 3,5-4,2 6,1-6,6 8,5

Torque control travel a = 1,0 mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
1000	106,5-107,5 (105,0-109,0)		500 700	109,0-112,0 (107,0-113,0) 113,0-115,0 (111,0-117,0)	100	RW = 17,6-18,6 mm	1000 500 700 850	12,2+0,1 13,2+0,1 13,1+0,2 12,7+0,2

Checking values in brackets

\* 1 mm less control rod travel than col. 2

# Test Specifications Fuel Injection Pumps ① and Governors

PE 12 P 100 A 520/6 RS 3103-1 RQV 375-1000 PA 639-2

Komb.-Nr. 0 401 830 711

supersedes SSCM

company: V 12.520 AN

engine: 220,0 kW

1- 8- 5-10- 3 - 7 - 6 - 11- 2 - 9 - 4 - 12  
0-15-60-75-120-135-180-195-240-255-300-315 ± 0,5° (± 0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke <sup>2,8-2,9</sup>  
(2,75-2,95) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	11,5+0,1	9,2-9,4	0,35(0,6)			
375	7,6-7,8	1,0-1,4	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in .

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1075	15,2-17,8	-	-	-	ca. 19	100 375	min. 9,2 7,6-7,8	350 450 700 1000	1,1-1,6 3,3-3,7 5,2-5,6 7,7
ca. 65	10,5 4,0 1250	1040-1050 1120-1150 0-1,0				375-475				

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1000	92,0-94,0 (90,0-96,0)	1040-1050*	-	-	100	230,0-250,0 (226,0-254,0)	-	-

Checking values in brackets

\* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

# Test Specifications Fuel Injection Pumps ② and Governors

PE 12 P 120 A 520 RS 3128 RQV 400-750 PA 708

supersedes 5.85

Komb.-Nr. 0 401 840 721

company: SSCM

1- 8- 5-10- 3 - 7 - 6 - 11- 2 - 9 - 4 - 12

engine: V 12.520 S 25

0-15-60-75-120-135-180-195-240-255-300-315 ± 0,5° (± 0,75°)

441 kW

Values only apply to test nozzle-and-holder assembly

1 688 901 019 and fuel-injection test tubing 1 680 750 067

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\frac{2,8-2,9}{(2,75-2,95)}$  mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	14,3+0,1	22,9-23,1	0,5(0,9)			
400	6,9-7,1	2,0-2,6	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Checking of slider PRG check rev/min 1		Control rod travel mm 2		①		Full-load speed regulation Setting point rev/min 3		Control rod travel mm 4		Test specifications rev/min 6		④		Idle speed regulation Setting point rev/min 7		Control rod travel mm 8		Test specifications rev/min 9		Control rod travel mm 10		⑤		Torque control rev/min 11		Control rod travel mm 12		③	
-	-	-	-	-	-	-	-	13,3	4,0	900	750-755	780-801	0-1,0	400	7,0	100	400	min.8,5	6,9-7,1	-	-	-	-	-	-	-	-	-	-

Torque-control travel on flyweight assembly dimension a =  mm Speed regulation: At  $750-755 \text{ min}^{-1}$  1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		cm <sup>3</sup> /-1000 strokes 2		②		Control rod stop rev/min 3		③a		Fuel delivery characteristics rev/min 4		cm <sup>3</sup> /-100 strokes 5		③b		Starting fuel delivery Idle speed rev/min 6		cm <sup>3</sup> /1000 strokes / mm Control rod travel 7		⑥		
700	229,0-231,0 (226,0-234,0)	-	-	-	-	-	-	-	-	-	-	-	100	170,0-190,0 (166,0-194,0)	-	-	-	-	-	-	-	-

Checking values in brackets

# Test Specifications Fuel Injection Pumps ① and Governors

PE 6 P 120 A 320 RS 3129 RQV 250-975 PA 709  
1-4-2-6-3-5 je 60° ± 0,5° (± 0,75°)

superseded 1.85  
company: Rolls Royce  
Eagle III  
engine: 204 kW  
Komb.-Nr. 0 401 846 793

Values only apply to test nozzle-and-holder assembly  
1 688 901 019 and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Mark for end of pump delivery 7,5° before  
end of pump delivery cyl.1.

Port opening at prestroke 5,7-5,8  
(5,65-5,85 mm (from BDO) RW=9,0-12,0 mm

Testoil-ISO 4113

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
900	12,7+0,1	20,6-20,8	0,5(0,9)			
250	5,6-5,8	1,7-2,3	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1040	15,2-17,8	-	-	-	ca. 16	100	min.7,1	250	1,1-1,2
ca. 66	11,7	1015-1025					250	5,6-5,8	330	2,1-2,6
	4,0	1105-1135							450	3,2-3,5
	1250	0-1,0				355-415			1020	8,3

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
900	206,0-208,0 (203,0-211,0)	1015-1025*	500	188,0-194,0 (185,0-197,0)	100	200,0-220,0 (196,0-224,0)	-	-

Checking values in brackets

\* 1 mm less control rod travel than col 2

# Test Specifications Fuel Injection Pumps ① and Governors

PE 6 P 120 A 320 RS 3134 RQV 250-1100 PA 764  
 Komb.-Nr. 9 400 087 312  
 Values only apply to test nozzle-and-holder assembly  
 1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes -  
 company: Volvo  
 engine: TM 101 G

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke <sup>2,6-2,7</sup>  
 (2,55-2,75) mm (from BDC) ; cyl. 1; RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	14,8+0,1	27,8-28,0	0,5(0,9)			
250	5,6-5,8	1,5-2,1	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min ①a ②a	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③	rev/min 10	mm 11
max.	1170	15,2-17,8	-	-	-	ca. 9	100	min.4,0	250	0,7-1,1
ca. 49	13,8 4,0 1375	1160-1170 1265-1295 0-1,0					250 230-290=2,0	2,1-2,3	500 800 1100	2,9-3,2 5,0-5,3 7,7

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min ④a	rev/min 4	cm <sup>3</sup> /1000 strokes 5b	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 700	0,35 bar 278,0-280,0 (275,0-283,0)	1160-1170*	LDA 700	0 bar 259,0-261,0 (256,0-264,0)	100	240,0-260,0	-	-

Checking values in brackets

\* 1 mm less control rod travel than col. 2

# D. Adjustment Test for Manifold Pressure Compensator VOL 10,0 r 1

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
 increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PE 6 P..RS 3134 + RQV..PA 764	0,35	0 0,21 0,16	14,8-14,9 14,0-14,1 14,5-14,7 14,2-14,3

Notes:  
 (1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)



# Test Specifications Fuel Injection Pumps ② and Governors

PE 6 P 120 A 720 RS 7001 RQ 200/1100 PA 713

Komb.-Nr. 0 402 646 819

supersedes 11.84

company: Scania

engine: DS 11 25, 26

Values only apply to test nozzle-and-holder assembly  
1 688 901 019 and fuel-injection test tubing 1 680 750 015

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

## A. Fuel Injection Pump Settings

Port closing at prestroke  $5,0-5,1$   
(4,95-5,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	11,7+0,1	16,1-16,3	0,6(0,9)			3,3 <sup>±</sup> 0,1
225	4,4-4,6	1,1-1,5	0,3(0,6)			(3,0-3,5) **

Adjust the fuel delivery from each outlet according to the values in .

## B. Governor Settings

Checking of slider PRG check rev/min 1		Control rod travel mm 2	Full-load speed regulation Setting point rev/min 3			Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Idle speed regulation Setting point rev/min 7		Control rod travel mm 8	rev/min 9	Control rod travel mm 10	Torque control rev/min 11		Control rod travel mm 12
800	15,2-17,8	800	16,5	10,7	1145-1160	225	4,5	100	min.5,9	-	-	-	-	-	-	
VH = max. 46°				4,0	1305-1355			225	4,4-4,6			300-340=2,0				
				1400	0 - 1,0											

Torque-control travel on flyweight assembly dimension a =  mm Speed regulation: At 1145-1160 min<sup>-1</sup> 1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm <sup>3</sup> /-1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /-1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes / mm 7
LDA 700	0,5 bar 161,0-163,0 (158,0-166,0)	-	LDA 1100	0,5 bar 163,0-171,0 (161,0-173,0)	100	240,0-290,0 =20,0-21,0 mm RW
			LDA 500	0 bar 120,0-124,0 (118,0-126,0)		

Checking values in brackets

# D. Adjustment Test for Manifold Pressure Compensator

SCA 11,0 u 11

-2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 P.. RS 7001 +RQ.. PA 713	0,50	0	11,7-11,8
		0,28	10,3-10,4
		0,17	11,4-11,5
			10,5-10,7

**Notes**

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

## S U P P L E M E N T A R Y I N F O R M A T I O N

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-I-400/117
- Test specifications approved by Scania on 17.5.1984
- Start of fuel delivery-engine: DS 11 25 - 15° before TDC  
DS 11 26 - 11°
- Firing sequence, engine : 1-5-3-6-2-4

\*\* Due to smoothing of the sealing edge, the spring tension with a new delivery-valve holder must be adjusted 70 2,9 - 3,1 mm.

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 11,0 w 2

2. Edition

En

PE 6 P 120 A 720 RS 7007 y RQV 200-1000 PA 539-2  
Komb.-Nr. 0 402 646 812 y  
Values only apply to test nozzle-and-holder assembly  
1 688 901 019 and fuel-injection test tubing 1 680 750 015

supersedes 7.85  
company: Scania  
engine: DSC 1102  
LKW 112

See page 2

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing difference between control-rod travel 8 mm and max. 1,85-2,55° camshaft

Port closing at prestroke		mm (from BDC)		= RW 6,0 - 8,0		
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning
rev/min	mm	cm <sup>3</sup> /100 strokes	cm <sup>3</sup> /100 strokes	mm	cm <sup>3</sup> /100 strokes	mm
1	2	3	4	2	3	6
700	16,0+0,1	22,4 - 22,6	0,7 (1,0)			3,3 ± 0,1
225	4,4-4,6	1,4 - 1,8	0,3 (0,6)			(3,0 - 3,5) **

Testoil-ISO 4113

Adjust the fuel delivery from each outlet according to the values in

\*\* Due to smoothing of the sealing edge, the initial spring tension with a new delivery-valve holder must be adjusted to 3,0 mm.

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1040	15,2-17,8	-	-	-	ca. 10	100	min. 5,9	150	0,5-0,8
ca. 62	15,0	1040-1050					225	4,4-4,6	430	3,1-3,6
	4,0	1175-1205					310-370	=2,0	720	5,1-5,4
	1300	0-1,0							1000	7,9

Torque control travel a = - mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery		Rotational-speed limitation		Fuel delivery characteristics		Starting fuel delivery		Torque-control	
Control-rod stop		intermediate speed		high idle speed		idle switching point		travel	
Test oil temp. 40°C (104°F)									
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
LDA 700	0,9 bar 224,0-226,0 (221,0-229,0)	1040-1050 *	LDA 1000 0,9 bar 220,0-228,0 (218,0-230,0)	LDA 500 0 bar 164,0-168,0 (162,0-170,0)	100	240,0-290,0 = 20,0-21,0 mm RW	-	-	

Checking values in brackets

\* 1 mm less control rod travel than col. 2

# D. Adjustment Test for Manifold Pressure Compensator

SCA 11,0 w 2

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting	Measurement	Control rod travel
	Gauge pressure = bar	Gauge pressure = bar	diminution difference mm (1)
PE 6 P..RS 7007 y +RQV..PA 539-2	0,90	0	16,0 - 16,1
		0,41	11,8 - 11,9
		0,29	14,0 - 14,1
			12,4 - 12,6

Notes

(1) when n = rev/min and gauge pressure = bar (- maximum full-load control rod travel)

## S U P P L E M E N T A R Y I N F O R M A T I O N

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-I-400/117
- Test specifications approved by Scania on 18.8.1983
- Start of fuel delivery-engine: 22° before TDC at RW = 6,0-8,0 mm
- Firing sequence, engine : 1-5-3-6-2-4

# Test Specifications Fuel Injection Pumps ① and Governors

PE 8 P 120 A 520/5 RS 7115 RQV 300-1150 PA 756  
 Komb.-Nr. 0 402 648 823  
 Values only apply to test nozzle-and-holder assembly  
 1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes -  
 company: MWM  
 engine: TBD 234 V 8

Testoil-ISO 4113

1- 8- 5- 4 - 7 - 2 - 3 - 6  
 10-30-90-120-180-210-270-300 ° ± 0,5 ° (± 0,75 °)  
 All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\frac{5,2-5,3}{(5,15-5,35)}$  mm (from BDC) : RW = 9.0-12.0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	12,0+0,1	19,1-19,3 (18,8-19,6)	0,5 (0,9)			
300	5,9-6,1	2,2-2,8	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	①a Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④ 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③ 9	rev/min 10	mm 11
max.	1200	15,2-17,8	-	-	-	ca. 11	100	min.7,4	300	1,3-1,4
ca. 66	11,0 4,0 1400	1190-1200 1275-1305 0 - 1,0				310-530	300	5,9-6,1	325	1,6-2,0
									390	2,4-2,8
									470	3,0-3,5
									1190	8,5

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery Idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min ④a	rev/min 4	cm <sup>3</sup> /1000 strokes ⑤b	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
		1190-1200*			100	200,0-240,0 (196,0-244,0)	-	-
The full-load delivery is adjusted on the engine in accordance with the engine inspection sheet.								

Checking values in brackets

\* 1 mm less control rod travel than col. 2

# D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
 increasing

Pump/governor	Setting Gauge pressure = bar	Measurement		Control rod travel- diminution difference mm (1)
		Gauge pressure = bar	Gauge pressure = bar	
PE 8 P..RS 7115 + RQV..PA 756	0,7	0	0,10	12,0-12,1 10,0-10,1 10,1-10,3

Notes  
 (1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps ② and Governors

En

PES 6 A 95 D 410 RS 2108 U RQ 200/1100 AB 647 L  
Komb.-Nr. 0 400 846 247

supersedes 11.84  
company: Raba  
engine: -

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\frac{1,7-1,8}{(1,65-1,85)}$  mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,0+0,1	10,7-10,9	0,35 (0,6)			
200	6,1-6,3	0,9-1,5	0,35 (0,55)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	15,4-16,4	600	15,9	10,0 4,0	1145-1160 1195-1225	200	6,0	100 200 350-390 = 2,0	min. 7,0 5,9-6,1	-	-

Torque-control travel on flyweight assembly dimension a = - mm Speed regulation: At 1145-1160 min<sup>-1</sup> 1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm <sup>3</sup> /-1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /-1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes/mm 7
1100	107,0-109,0 (105,0-111,0)	-	700	104,0-107,0 (101,5-109,5)	100	19,5-21,0 mm RW
			500	98,0-101,0 (95,5-103,5)	200	6,2 mm RW

Checking values in brackets

# Test Specifications Fuel Injection Pumps ② and Governors

PES 4 A 90 D 410 RS 2195 Z RQ 250/1200 AB 849 L  
Komb.-Nr. 0 400 844 063

supersedes 1.84  
company: OM-Brescia  
engine:

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

## A. Fuel Injection Pump Settings

Port closing at prestroke <sup>2,15-2,25</sup> (2,10-2,30) mm (from BUC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1200	10,8+0,1	6,8-6,9	0,3(0,45)			
250	8,4-8,6	1,0-1,6	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Checking of slider PRG check rev/min 1		Control rod travel mm 2	Full-load speed regulation Setting point rev/min 3		Control rod travel mm 4	Test specifications rev/min 6	Idle speed regulation Setting point rev/min 7		Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	Torque control rev/min 11		Control rod travel mm 12
650	15,6-16,4	650	16,0	9,8 4,0	1245-1260 1325-1355	250	6,0	100 250 425-465=2,0	min.7,2 5,9-6,1	-	-	-	-	

Torque-control travel on flyweight assembly dimension a =  mm Speed regulation: At 1245-1260 min<sup>-1</sup> 1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		cm <sup>3</sup> /-1000 strokes 2	Control rod stop rev/min 3	Fuel delivery characteristics rev/min 4	cm <sup>3</sup> /-1000 strokes 5	Starting fuel delivery Idle speed rev/min 6	cm <sup>3</sup> /1000 strokes / mm 7
1200	68,0-69,0 (66,0-71,0)	-	800	58,0-62,0 (56,0-64,0)	100	16,3-17,0 mm RW	

Checking values in brackets



# Test Specifications Fuel Injection Pumps and Governors

**Testoil-ISO 4113**

PES 6 A 95 D 410 RS2416

RQ.. 865D, 1054

superseded 3.84

PES 5 A 95 D 410 RS 2417

..A8C616D,..A7C616D  
EP/RSV .. AB B616D, A7 B616D

company KHD Lizenz TAM  
engine F6 L413R (8,8)

PES 4 A 95 D 410 RS2424

RQV 275-1325 AB799D

F5 L413R (7,4)

F4 L413R (5,9)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\frac{1,75-1,85}{(1,70-1,90)}$  mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	7,5 - 8,0	0,4			
	6	3,2 - 4,2				
200	6	0,5 - 1,4				

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

RQ 275/1100 AB865D

Checking of slider		Full load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Test specifications rev/min 5	Control rod travel mm 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	15,7-16,3	600	16,0	1130	14,5-14,8	570	0	100	7,4-8,1	800	15,8-16,0
				1200	6,2-11,5			200	6,2-8,1		
				1230	0 - 9,5			350	2,4-4,6		
				1320	0			460	0		
										1000	14,8-15,0

Torque control travel on flyweight assembly dimension a = 0,35 mm

Speed regulation At

1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery on governor control lever Test oil temp 40°C (104 F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery	
rev/min 1	cm <sup>3</sup> /-1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /-1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000strokes 7
	page 5 - 6				100	114 - 124

Checking values in brackets

## B. Governor Settings

RQ 275/1200 AB865D

KHD 8,8 a - 2 -

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	12
600	15,7-16,3	600	16,0	1220 1280 1300 1420	14,5-14,8 7,0-12,1 0 - 6,7 0	560	0	100 200 350 460	7,3-8,1 6,1-8,1 2,4-4,6 0	800	15,8-16,0
										1000	14,8-15,0

Torque control travel on flyweight assembly dimension a - 0,35 mm

Speed regulation At

1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104 F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a	③b		⑥	
rev/min	cm <sup>3</sup> /-1000 strokes	rev/min	rev/min	cm <sup>3</sup> /-1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes / mm
1	2	3	4	5	6	7
	page 5 - 6					

Checking values in brackets

## B. Governor Settings

RQ 275/1325 AB865D

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	12
600	15,7-16,3	600	16,0	1340 1400 1470 1560	14,5-14,8 9,6-13,0 0 - 8,2 0	560	0	100 200 350 460	7,4-8,1 6,1-8,1 2,5-4,6 0	800	15,8-16,0
										1000	14,8-15,0

Torque control travel on flyweight assembly dimension a - 0,35 mm

Speed regulation At

1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104 F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a	③b		⑥	
rev/min	cm <sup>3</sup> /-1000 strokes	rev/min	rev/min	cm <sup>3</sup> /-1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes / mm
1	2	3	4	5	6	7
	page 5 - 6					

En Checking values in brackets

## B. Governor Settings

EP/RSV...

KHD 8,8 a

- 3 -

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel Torque-control travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11

### ..A7 C616D 300-750 A7 B616D

ca. 48	750	16,0	without auxiliary spring	ca.24	300	6,0	730	0
	800	8,0			125	19,0-21		
	820	4,2			300	5,7-6,3	350	0,7-0,9
	785	9,4-11,6	with auxiliary spring		450	0,6-3,2		
	810	4,8- 7,7				560	0 - 1	
	940	0,3- 1,0						

### 300-900 A7 B616D

ca. 60	900	16,0	without auxiliary spring	ca.27	300	6,0	880	0
	950	9,8			100	19 - 21		
	975	6,0			300	5,7-6,3	400	0,9-1,1
	950	8,6-10,9	with auxiliary spring		450	0,8-3,3		
	1000	2,8- 4,7				600	0 - 1	
	1100	0,3- 1,0						

### 300-1000 A8 B616D

ca. 50	1000	16,0	without auxiliary spring	ca.21	300	6,0	980	0
	1050	11,7			150	19 - 21		
	1100	6,5			300	5,7-6,3	400	0,9-1,1
	1050	10,8-12,6	with auxiliary spring		500	1,2-3,6		
	1120	4,0- 6,0				650	0 - 1	
	1270	0,3- 1,0						

### ..A8 C616D 300-1150 A8 B616D

ca.55	1150	16,0	without auxiliary spring	ca.20	300	5,5	1140	0
	1200	11,8			300	5,9-6,1		
	1250	7,0			540-600=2,0	800	0,4-0,6	
	1200	11,0-12,8	with auxiliary spring			400	0,9-1,0	
	1300	2,7- 4,6						
	1430	0,3- 1,0						

### ..A8 C616D 300-1325 A8 B616D

ca.68	1325	16,0	without auxiliary spring	ca.24	300	6,0	1310	0
	1400	9,4			150	19 - 21		
	1440	5,0			300	5,7-6,3	450	0,9-1,1
	1400	8,3-10,5	with auxiliary spring		450	2,3-4,4		
	1450	3,0- 4,7				650	0 - 1	
	1600	0,3- 1,0						

En

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B3

### B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel Torque-control travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11

**RQ 900 AB 1054**

ca. 26	850	16,0-19,0	-	-	-	-	-	-	900	3,2
	900	9,0-12,5								
	950	0,8- 3,8							-	-

**RQ 750 AB 1054**

ca. 26	720	15,0-18,0	-	-	-	-	-	-	750	3,4
	750	8,8-11,7								
	800	0 - 2,4							-	-

**RQV 275-1325 AB799D**

torque-control travel Maß a = 0,9 mm

ca. 68	1375	15,0-18,0	-	-	-	ca.12	200	6,4-8,2	1375	8,3
	1630	0					400	2,8-4,6		
ca. 66	1325	15,0-17,5				600	1,5-3,0	1325	0	
	1410	7,4-13,0				750	0 -1,4	500	0,8-1,0	
	1490	0 - 8,0				850	0			
	1600	0								

--	--	--	--	--	--	--	--	--	--	--

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**C: Settings for Fuel Injection Pump with Fitted Governor**

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	
1. <u>85(115) - 105(413) - 125(170) / 2650</u>								
1325	80,5-82,5	1340	850	77,5-80,5	100	119 - 129		
2. <u>79(108) - 100(136) - 120(163) / 2650</u>								
1325	77,5-79,5	1340	850	74,5-77,5		"		
3. <u>81(110) - 101(137) - 121(169) / 2500</u>								
1250	80,5-82,5	1270	850	77,5-80,5		"		
4. <u>77(105) - 97(132) - 116(158) / 2500</u>								
1250	77,5-79,5	1270	850	74,5-77,5		"		
5. <u>74(100) - 92(125) - 110(150) / 2500</u>								
1250	72,5-74,5	1270	850	71,5-74,5		"		
6. <u>76(104) - 96(130) - 115(156) / 2300</u>								
1150	78,5-80,5	1170	850	77,5-80,5		"		
7. <u>74(100) - 92(125) - 110(150) / 2300</u>								
1150	74,5-76,5	1170	850	74,5-77,5		"		
8. <u>70( 95) - 87(118) - 105(143) / 2300</u>								
1150	70,5-72,5	1170	850	71,5-74,5		"		
9. <u>66( 90) - 83(113) - 100(136) / 2300</u>								
1150	66,5-68,5	1170	850	67,5-70,5		"		
10. <u>70( 95) - 87(118) - 104(142) / 2150</u>								
1075	74,5-76,5	1090	850	74,5-77,5		"		
11. <u>66( 90) - 82(112) - 99(135) / 2150</u>								
1075	70,5-72,5	1090	850	71,5-74,5		"		
12. <u>63( 85) - 79(107) - 95(129) / 2150</u>								
1075	66,5-68,5	1090	850	67,5-70,5		"		
13. <u>66( 90) - 82(112) - 99(135) / 2000</u>								
1000	73,5-75,5	1020	850	73,5-76,5		"		
14. <u>62( 84) - 78(106) - 94(128) / 2000</u>								
1000	70,5-72,5	1020	850	71,5-74,5		"		
15. <u>60( 82) - 75(102) -90(122) / 2000</u>								
1000	67,5-69,5	1020	850	68,5-71,5		"		

Checking values in brackets

\* 1 mm less control rod travel than col 2

Testoil-ISO 4113

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**C: Settings for Fuel Injection Pump with Fitted Governor**

engine power Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation rev/min	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm <sup>3</sup> /1000 strokes		rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	
16. <u>60(82) - 76(103) - 91(124) / 1800</u>								
900	74,5-76,5	910	-	-	-	100	119-129	
17. <u>57(78) - 72( 98) - 87(118) / 1800</u>								
900	70,5-72,5	910	-	-	-		"	
18. <u>54(74) - 69( 94) - 83(113) / 1800</u>								
900	67,5-69,5	910	-	-	-		"	
19. <u>50(68) - 63( 85) - 76(103) / 1500</u>								
750	74,5-76,5	760	-	-	-		"	
20. <u>48(65) - 60( 82) - 72( 98) / 1500</u>								
750	70,5-72,5	760	-	-	-		"	
21. <u>46(62) - 57( 78) - 68( 93) / 1500</u>								
750	66,5-68,5	760	-	-	-		"	
F 4 - 5 6 L 413 R - A power output at speed								
22. <u>66(90) - 83(113) -100(136) / 2300</u>								
1140	73,5-75,7	1150					"	
23. <u>63(85) - 79(107) -95(129) / 2150</u>								
1065	74,5-76,5	1075					"	
24. <u>60(81) - 75(102) - 90(122) / 2000</u>								
990	73,5-75,7	1000					"	
25. <u>54(74) -69( 94) -83(113) / 1800</u>								
890	74,5-76,5	900					"	
26. <u>46(62) - 57( 78) - 68( 93) / 1500</u>								
740	73,5-75,5	750					"	
F 6 L 413 FR - A power output at speed								
27. <u>90 / 1500</u>								
700	85,5-87,5	750-755					"	
28. <u>106 / 1800</u>								
850	85,5-87,5	900-905					"	

Testoil-ISO 4113

Checking values in brackets

\* 1 mm less control rod travel than col. 2

# Test Specifications Fuel Injection Pumps (1A) and Governors

# 40

WPP 001/4 MWM 6,2d

7. Edition

En

**Testoil-ISO 4113**

PES 6 A 90 D 320/3 RS 2483 RSV 325-1200 A2 R 777DR  
Change of governor to  
RSV 400-1200 A2B 777 R  
**A2C 777 R**

supersede **5.80**  
company **MWM**  
engine **TD 228-6**  
**110 kW**

Komb.-Nr. 0 400 865 072

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\begin{matrix} 2,15-2,25 \\ (2,10-2,30) \end{matrix}$  Difference between  
mm (from BDC) ; RW=7,5 mm CRT9 + 21  $3.5-4.5^\circ$

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1180	10,5-10,6	7,3 - 7,4	0,3 (0,4)			
400	6,4-6,6	0,6 - 1,2	0,2 (0,4)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0				ca. 17	325	6,5	1180	10,5-10,6
	$x = 3,5$						100	min. 19	750	11,5-11,7
ca. 13	9,5	1220-1230					400	6,4-6,6	500	11,7-11,8
2a	4,0	1260-1290					610-670	= 2,0		
	1450	0,3-1,7					725	0 - 1		

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop Test oil temp 40°C (104°F)		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery rate		4a Idle stop	
rev/min	cm <sup>3</sup> /1000 strokes	Note changed to ; rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	
LDA 1180	0,7 bar 73,0 - 74,0 (71,0 - 76,0)	1220-1230*	LDA 500	0,7 bar 72,0 - 74,0 (70,0 - 76,0)	-	-	-	-	
LDA 750	0,7 bar 79,0 - 82,0 (77,0 - 84,0)		LDA 500	0 bar 56,5 - 59,5 (54,5 - 61,5)					

Checking values in brackets

\* 1 mm less control rod travel than col 2

# BOSCH

Geschäftsbereich KH Kundendienst Kfz Ausrüstung  
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# D. Adjustment Test for Manifold Pressure Compensator

FORM 6,2 1

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
 increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 A..RS 2485 RSV..A2B 777R A2C 777R	0,70	0,09	11,7 - 11,8
		0,06	11,4 - 11,5
		0	11,0 - 11,2
			10,7 - 10,8

Notes

(1) when n =

rev/min and  
gauge pressure =

bar ( = maximum full-load control rod travel)



# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 1 g 3  
9. Edition

En

PES 4 A 85 D 410/3 RS 2638 RSV 325-1150 AOB 2168 L  
Komb.-Nr. 0 400 864 054

supersedes 5,84  
KHD  
company BF 4 L 913  
engine 66 kW/2300 min<sup>-1</sup>  
tractor DX92 (1)  
60 kW/2300 min<sup>-1</sup>  
tractor DX86 (2)  
BF 4 L 913 T

Symbol S 29

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Symbol S 28

## A. Fuel Injection Pump Settings

Port closing at prestroke (2,45-2,65) mm (from BDCRW=9,0-12,0 mm)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1110	12,3+0,1	8,0-8,1	0,3(0,45)			
325	8,1-8,3	0,9-1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

## B. Governor Settings

Degree of deflection of control lever 1	1 Upper rated speed rev/min		Intermediate rated speed			Control-lever deflection in degrees 7	4 Lower rated speed		3 Torque control	
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-0,7	-	-	-	ca. 31	325	7,7	1110	12,3-12,4
ca. 55	11,3 4,0 1465	1155-1165					325	8,1-8,3	500	13,1-13,2
		0,3-1,7					700-760 = 2,0		940	12,7-12,9

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit	3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop		
Test oil temp. 40°C (104°F)	rev/min 1	cm <sup>3</sup> /1000 strokes 2	Note: changed to ) rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
(1)	1110	80,0-81,0 (78,0-83,0)	1155-1165*	700	79,5-81,5 (77,0-84,0)	100	100,0-110,0 (97,0-113,0)	-	-
							= 16,8 - 17,2 mm RW		

Checking values in brackets

\* 1 mm less control rod travel than col 2

7.85

**BOSCH**

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### B. Governor Settings

① Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			④ Control-lever deflection in degrees 7	Lower rated speed		③ Torque control	
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca.26	325	7,0	1150	10,5+0,1
	x = 4,0						100	min.19,0	500	11,2+0,1
ca. 56	9,6	1220-1230					325	7,4-7,6	900	10,9+0,3
②a	4,0	1325-1355					720-780	= 2,0		
	1475	0,3-1,7								

### C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp. 40°C (104°F)		⑥ Rotational-speed limitat. Note: changed to ... rev/min 3	③a Fuel delivery characteristics		Starting fuel delivery ⑤ Idle		④a Idle stop	
rev/min 1	cm³/1000 strokes 2		rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9
(2) 1150	74,5-75,5 (72,5-77,5)	1220-1230*	800	65,5-68,5 (63,5-70,5)	100	108,5-118,5	-	-

Checking values in brackets

\* 1 mm less control rod travel than col. 2

**Testoil-ISO 4113**

### B. Governor Settings

① Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			④ Control-lever deflection in degrees 7	Lower rated speed		③ Torque control	
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
②a										

### C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp. 40°C (104°F)		⑥ Rotational-speed limitat. Note: changed to ... rev/min 3	③a Fuel delivery characteristics		Starting fuel delivery ⑤ Idle		④a Idle stop	
rev/min 1	cm³/1000 strokes 2		rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9

Checking values in brackets

\* 1 mm less control rod travel than col. 2

# Test Specifications Fuel Injection Pumps ② and Governors

PES 6 A 95 D 410 LS 2639-1 RQ 250/1100 AB 1137-7 L  
Komb.-Nr. 0 400 846 524

supersedes 6.83  
company MAN  
engine D 2566 MUH/MUM  
176 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $1,5 - 1,6$  mm (from BDC) RW = 9,0 - 12,0 mm  
(1,45-1,65)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference. ** cm <sup>3</sup> / 100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	13,6+0,1	13,5 - 13,7	0,35(0,6)			
250	7,5-7,7	0,9 - 1,5	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

## B. Governor Settings

Checking of slider FRG check		Full load speed regulation				Idle speed regulation				Torque control						
①		Setting point		Test specifications		④		Setting point		Test specifications		⑤		③		
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12	11	12	11	12	
600	15,6-16,4	600	16,0	12,6 4,0 1350	1145-1160 1270-1300 0 - 1,0	250	7,0	100 250 395-435 450	min. 6,9-7,1 3,5=2,0 max. 1,0	-	-	-	-	-	-	

Torque-control travel on flyweight assembly dimension a =  mm Speed regulation: At  $1145-1160 \text{ min}^{-1}$  1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a	③b		⑥	
rev/min	cm <sup>3</sup> /-1000 strokes	rev/min	rev/min	cm <sup>3</sup> /-1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes / mm
1	2	3	4	5	6	7
1100	135,0-137,0 (133,0-139,0)	-	500 700	121,5-125,5 (119,0-128,0) 121,0-124,0 (118,5-126,5)	100	95,0-105,0 (92,0-108,0) = 14,4-14,6 mm RW

Checking values in brackets

# Test Specifications Fuel Injection Pumps and Governors

Testoil-ISO 4113

PES 4 M 50 C 320 RS 103  
RSF 375/2250 M 19  
Komb.-Nr. 0 400 074 978 Sales model 0 400 074 977

supersedes 1.85  
company Daimler-Benz  
engine OM 615  
44 kW (60 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke **170-180** mm (from BDC) **18,5-21,5** Control rod travel  
(1,65-1,85)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (compensating valve) mm
1	2	3	4	2	3	6
1000	12,2 <sup>+0,1</sup>	3,2-3,3	0,25(0,3)			
375	6,4-6,6	0,65-0,75	0,1 (0,15)			
1800			0,25(0,3)			
2200			0,25(0,3)			

Set uniform delivery according to the values in [ ]

Checking values in brackets

## B. Governor Settings

Lower rated speed			Upper rated speed			Variations in control rod travel		
Degree of deflection of control lever	Control rod travel mm	Rotational speed rev/min	Degree of deflection of control lever	Control rod travel mm	Rotational speed rev/min		Rotational speed rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
13-17	min. 12,0 max. 11,5	250 300		7 11,3-11,5	2200		12 100	min. 20,1
	2 6,4-6,6	375	50	8 6,7-7,1	2500		13 1800	11,7-11,9
	3 5,1-5,3	450 **		9 -	-		14 1000	12,2-12,3
	4 2,0	720-820		10 0-1,0	2950			
	5			11			6 Switching point	

## C. Settings for Fuel Injection Pump with Governor Mounted

Full-load delivery (19)		Full-load speed regulation (8a)	Variations in fuel delivery (17)		Starting fuel delivery idle		Difference
Test oil temp 40 C (104 F)							
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	cm <sup>3</sup> /1000 strokes
1	2	3	4	5	6	7	8
2200	33,0-35,0 (33,0-36,0)	2500* RW 6,7-7,1	1800	33,0-35,0 (32,0-36,0)	100	min. 53,0	6,0 (12a)
			1000	32,0-33,0 (31,0-35,0)	375	6,5-7,5 (5,5-9,0)	1,0 (15)
					2500	13,0-17,0 (12,0-18,0)	2,5 See Point 8 a (16)

Checking values in brackets

\*ca. 3,5 less control rod travel than in Column 2

1. \*\* Checking the idle speed auxiliary spring setting at  $n = 450 \text{ rpm}$ , control rod travel (5.0-5.4 mm).
2. Adjusting the idle control-lever position:  
At  $1000 \text{ min}^{-1}$ , control-rod travel 1,4 - 1.5 mm.
3. Testing the idle-speed auxiliary spring shutoff  
Control-lever position  $47^{\circ}$ . No change in control-rod travel after switching point up to  $550 \text{ min}^{-1}$ .  
Control-lever position  $30^{\circ}$ . Rotational-speed range  $350 \text{ min}^{-1}$  -  $450 \text{ min}^{-1}$ .
4. Testing the pneumatic shutoff box  
Control lever against idle stop.  
At  $n = 375 \text{ min}^{-1}$  and 450 mbar (vacuum) (338 mmHg) the control rod must move briskly to RW (control-rod travel) = 0 mm.

# Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 2,0 h

En

2. Edition

**Testoil-ISO 4113**

PES 4 M 50 C 320 RS 103  
RSF 375/2250 M 20  
0 400 074 975/..976  
1 - 3 - 4 - 2 je 90°

supersedes 10.81  
company Daimler-Benz  
engine OM 615  
44 kW (60 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke **1,70-1,80** mm (from BDC)  
**(1,65-1,85)** Control rod travel **18,5-21,5**

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (compensating valve) mm
1	2	3	4	2	3	6
1000	<b>11,4+0,1</b>	<b>2,95-3,05</b>	<b>0,25(0,3)</b>			
375 1900 2200	6,4-6,6	0,65-0,75	0,1 (0,15) 0,25(0,3) 0,25(0,3)			

Set uniform delivery according to the values in [ ]

Checking values in brackets

## B. Governor Settings

Lower rated speed			Upper rated speed			Variations in control rod travel		
Degree of deflection of control lever	Control rod travel mm	Rotational speed rev/min	Degree of deflection of control lever	Control rod travel mm	Rotational speed rev/min		Rotational speed rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
13-17	① min.12,0 ② 6,4-6,6 ③ 5,1-5,3 ④ - ⑤ 2,0	250 375 450 **  720-820	50	⑦ 11,4+0,1 ⑧ 7,6-8,0 ⑨ 0-1,0 ⑩ - ⑪ -	1000 2500 2950		⑫ 100 ⑬ 1900 ⑭ 2200	min.20,1 10,9-11,1 10,7-10,9
							⑥ Switching point	

## C. Settings for Fuel Injection Pump with Governor Mounted

Full load delivery ⑰		Full load speed regulation ⑱	Variations in fuel delivery ⑰		Starting fuel delivery idle ⑱		Difference
Test oil temp 40°C (104°F)							
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	cm <sup>3</sup> /1000 strokes
1	2	3	4	5	6	7	8
2200	<b>31,5-33,5</b> <b>(30,5-34,5)</b>	2500*	1900	32,0-34,0 (31,0-35,0)	100	min. 55,0	6,0 ⑫
			1000	29,5-30,5 (28,5-31,5)	375	6,5-7,5 (5,5-9,0)	1,0 ⑮
					2500	17,0-21,0 (16,0-22,0)	2,5 (3,0) See point 8a ⑯

Checking values in brackets

\*ca. 3,0 less control rod travel than in Column 2

12.85

# BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung  
1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany  
Imprime en République Fédérale d'Allemagne par Robert Bosch GmbH

1. \*\* Checking the idle speed auxiliary spring setting at  $n = 450$  rpm, control rod travel (5.0-5.4 mm).
  
2. Adjusting the idle control-lever position:  
At  $1000 \text{ min}^{-1}$ , control-rod travel 1,4 - 1.5 mm.
  
3. Testing the idle-speed auxiliary spring shutoff  
Control-lever position  $47^\circ$ . No change in control-rod travel after switching point up to  $550 \text{ min}^{-1}$ .  
Control-lever position  $30^\circ$ . Rotational-speed range  $350 \text{ min}^{-1}$  -  $450 \text{ min}^{-1}$ .
  
4. Testing the pneumatic shutoff box  
Control lever against idle stop.  
At  $n = 375 \text{ min}^{-1}$  and 450 mbar (vacuum) (338 mmHg) the control rod must move briskly to RW (control-rod travel) = 0 mm.

# Test Specifications Fuel Injection Pumps and Governors

Testoil-ISO 4113

PES 4 M 55 C 320 RS 104  
RSF 375/2300 M 4  
Komb. Nr. 0 400 074 997

supersedes 1.85  
company Daimler-Benz  
engine OM 615  
49 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke **1,70-1,80** mm (from BDC) Control rod travel  
**(1,65-1,85)** **18,5-21,5**

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (compensating valve) mm
1	2	3	4	2	3	6
1000	13,0+0,1	3,7-3,8	0,25(0,3)			
375	6,1-6,3	0,65-0,75	0,1 (0,15)			
1600			0,25(3,0)			
2300			0,25(3,0)			

Set uniform delivery according to the values in [ ]

Checking values in brackets

## B. Governor Settings

Lower rated speed			Upper rated speed			Variations in control rod travel		
Degree of deflection of control lever	Control rod travel mm	Rotational speed rev/min	Degree of deflection of control lever	Control rod travel mm	Rotational speed rev/min		Rotational speed rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
11-15	① min. 11,0 ② max. 10,5 ③ 6,1-6,3 ④ 4,8-5,0 ⑤ 2,0	250 300 375 450 ** 720-820	50	⑦ 12,4-12,6 ⑧ 9,5 ⑨ ⑩ 0-1,0 ⑪	2300 2570 2950		⑫ 100 ⑬ 1600 ⑭ 1000	min. 20,1 12,7-12,9 13,0-13,1
							⑥ Switching point	

## C. Settings for Fuel Injection Pump with Governor Mounted

Full load delivery		Full-load speed regulation	Variations in fuel delivery		Starting fuel delivery Idle		Difference
Test oil temp 40°C (104°F)	rev/min	rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	cm <sup>3</sup> /1000 strokes
	1	3	4	5	6	7	8
	2300	2570 * RW = 9,5	1600	38,0-40,0 (37,0-41,0)	100	min. 53,0	6,0
					375	6,5-7,5 (6,0-8,0)	1,0 (1,5)
			1000	37,0-38,0 (36,0-39,0)	2570	15,0-21,0 (14,0-22,0)	6,0 (3,0)

Checking values in brackets

\*ca. 3,0 less control rod travel than in Column 2



1. \*\* Checking the idle speed auxiliary spring setting at  $n = 450 \text{ rpm}$ , control rod travel (4,7-5,1 mm).
  
2. Adjusting the idle control-lever position:  
At  $1000 \text{ min}^{-1}$ , control-rod travel 1,4 - 1,5 mm.
  
3. Testing the idle-speed auxiliary spring shutoff  
Control-lever position  $45^\circ$ . No change in control-rod travel after switching point up to  $550 \text{ min}^{-1}$ .  
Control-lever position  $28^\circ$ . Rotational-speed range  $350 \text{ min}^{-1}$  -  $450 \text{ min}^{-1}$ .
  
4. Testing the pneumatic shutoff box  
Control lever against idle stop.  
At  $n = 375 \text{ min}^{-1}$  and 450 mbar (vacuum) (338 mmHg) the control rod must move briskly to RW (control-rod travel) = 0 mm.

# Test Specifications Fuel Injection Pumps and Governors

Testoil-ISO 4113

PES 4 M 55 C 320 RS 104  
RSF 375/2300 M 6  
Komb.-Nr. 0 400 074 995

superseded 1.85  
company Daimler-Benz  
engine OM 615  
49 kW  
Sweden version

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke 1,70-1,80 mm (from BDC) Control rod travel  
(1,65-1,85) 18,5-21,5

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (compensating valve) mm
1	2	3	4	2	3	6
1000	13,0 <sup>+0,1</sup>	3,7-3,8	0,25(0,3)			
375 1600 2300	6,1-6,3	0,65-0,75	0,1(0,15) 0,25(0,3) 0,25(0,3)			

Set uniform delivery according to the values in

Checking values in brackets

## B. Governor Settings

Lower rated speed			Upper rated speed			Variations in control rod travel		
Degree of deflection of control lever	Control rod travel mm	Rotational speed rev/min	Degree of deflection of control lever	Control rod travel mm	Rotational speed rev/min		Rotational speed rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
11-15	min. 11,0 max. 10,5	250 300	50	12,4-12,6	2300		100	min. 20,1
①			⑦				⑫	
②	6,1-6,3	375	⑧	9,5	2650		⑬	1600 12,7-12,9
③	4,8-5,0	450 **	⑨				⑭	1000 13,0-13,1
④	-		⑩	0-1,0	2900			
⑤	2,0	720-820	⑪				⑥	Switching point

## C. Settings for Fuel Injection Pump with Governor Mounted

Full-load delivery		Full-load speed regulation	Variations in fuel delivery		Starting fuel delivery Idle		Difference
Test oil temp 40°C (104°F)			rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	
1	2	3	4	5	6	7	8
2300	38,5-40,5 (37,5-41,5)	2650* RW = 9,5	1600	38,0-40,0 (37,0-41,0)	100	min. 53,0	6,0
			1000	37,0-38,0 (36,0-39,0)	375	6,5-7,5 (6,0-8,0)	1,0
					2650	15,0-21,0 (14,0-22,0)	(1,5)
							2,5
							(3,0)

Checking values in brackets

\*ca. 3,0 less control rod travel than in Column 2

1. \*\* Checking the idle speed auxiliary spring setting at  $n = 450 \text{ rpm}$ , control rod travel (4,7-5,1 mm).
2. Adjusting the idle control-lever position:  
At  $1000 \text{ min}^{-1}$ , control-rod travel 1,4 - 1.5 mm.
3. Testing the idle-speed auxiliary spring shutoff  
Control-lever position  $45^\circ$ . No change in control-rod travel after switching point up to  $550 \text{ min}^{-1}$ .  
Control-lever position  $28^\circ$ . Rotational-speed range  $350 \text{ min}^{-1}$  -  $450 \text{ min}^{-1}$ .
4. Testing the pneumatic shutoff box  
Control lever against idle stop.  
At  $n = 375 \text{ min}^{-1}$  and 450 mbar (vacuum) (338 mmHg) the control rod must move briskly to RW (control-rod travel) = 0 mm.

# Test Specifications Fuel Injection Pumps and Governors

Test Specifications

PES 4 M 55 C 320 RS 107-1  
RSF 375/2250 M 17  
Komb.-Nr. 0 400 074 956 Sales model 0 400 074 957

supersedes 1.85  
company Daimler-Benz  
engine OM 616  
53 kW (72 PS)  
Sweden version

1 - 3 - 4 - 2  
0 - 90-180-270

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $2,20-2,30$  mm (from BDC) Control rod travel  $18,5-21,5$   
(2,15-2,35)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre tensioning (compensating valve) mm
1	2	3	4	2	3	6
1000	13,4 <sup>+0,1</sup>	3,9-4,0	0,25(0,3)			
375	6,0-6,2	0,6-0,7	0,1 (0,15)			
1800			0,25(0,3)			
2200			0,25(0,3)			

Set uniform delivery according to the values in [ ]

Checking values in brackets

## B. Governor Settings

Lower rated speed			Upper rated speed			Variations in control rod travel		
Degree of deflection of control lever	Control rod travel mm	Rotational speed rev/min	Degree of deflection of control lever	Control rod travel mm	Rotational speed rev/min		Rotational speed rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
9-13	① min. 11,0	250	50	⑦ 12,5-12,7	2200		⑫ 100	min. 20,1
	② max. 10,5	300		⑧ 8,2-8,6	2500		⑬ 1800	12,8-13,0
	③ 6,0-6,2	375		⑨ -	-		⑭ 1000	13,4-13,5
	④ 4,8-5,0	450 **		⑩ 0-1,0	2950			
	⑤ 2,0	720-820		⑪ -			⑥ Switching point	

## C. Settings for Fuel Injection Pump with Governor Mounted

Full load delivery		Full load speed regulation	Variations in fuel delivery		Starting fuel delivery Idle		Difference
Test oil temp 40°C (104 F)			rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	
1	2	3	4	5	6	7	8
2200	39,5-41,5 (38,5-42,5)	2500* RW 8,2-8,6	1800	39,0-41,0 (38,0-42,0)	100	min. 53,0	6,0
			1000	39,0-40,0 (38,0-41,0)	375	6,0-7,0 (5,5-9,0)	1,0
					2500	23,0-27,0 (22,0-28,0)	2,5 See 3,0 Point 8 a

Checking values in brackets

\*ca. 4,2 less control rod travel than in Column 2

1. \*\* Checking the idle speed auxiliary spring setting at  $n = 450 \text{ rpm}$ , control rod travel (4,7-5,1mm).
2. Adjusting the idle control-lever position:  
At  $1000 \text{ min}^{-1}$ , control-rod travel 1,4 - 1.5 mm.
3. Testing the idle-speed auxiliary spring shutoff  
Control-lever position  $47^{\circ}$ . No change in control-rod travel after switching point up to  $550 \text{ min}^{-1}$ .  
Control-lever position  $30^{\circ}$ . Rotational-speed range  $350 \text{ min}^{-1}$  -  $450 \text{ min}^{-1}$ .
4. Testing the pneumatic shutoff box  
Control lever against idle stop.  
At  $n = 375 \text{ min}^{-1}$  and 450 mbar (vacuum) (338 mmHg) the control rod must move briskly to RW (control-rod travel) = 0 mm.

5

# Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 MB 2,4 L 2

1. Edition

En

PES 4 M 55 C 320 RS 107-1  
RSF 375/1700 M 18-1  
0 400 074 955  
1 - 3 - 4 - 2 je 90°

supersedes \_  
company Daimler Benz  
engine OM 616  
45 kW-  
Tunnelling or mining vehicles

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $2,20-2,30$  mm (from BDC)  $20-22$  Control rod travel  
 $(2,15-2,35)$

Testoil-ISO 4113

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (compensating valve) mm
1	2	3	4	2	3	6
1650	11,9+0,1	3,55-3,65	0,25(0,3)			
375 1200 600	6,0-6,2	0,6-0,7	0,1(0,15) 0,25(0,3) 0,25(0,3)			

Set uniform delivery according to the values in

Checking values in brackets

## B. Governor Settings

Lower rated speed			Upper rated speed			Variations in control rod travel		
Degree of deflection of control lever	Control rod travel	Rotational speed	Degree of deflection of control lever	Control rod travel	Rotational speed		Rotational speed	Control rod travel
1	mm	rev/min	4	mm	rev/min	7	rev/min	mm
1	2	3	4	5	6	7	8	9
11-15	① min. 11,0 ② max. 10,5 ③ 6,0-6,2 ④ 4,8-5,0 ⑤ 2,0	250 300 375 450** 720-820	50	⑦ 11,9+0,1 ⑧ 7,0-7,4 ⑨ - ⑩ 0-1,0 ⑪	1650 1900 2950	⑫ ⑬ ⑭ ⑯	100 1200 600 Switching point	min. 20,1 12,1-12,3 12,8-13,0

## C. Settings for Fuel Injection Pump with Governor Mounted

Full-load delivery		Full-load speed regulation	Variations in fuel delivery		Starting fuel delivery idle		Difference
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	cm <sup>3</sup> /1000 strokes
1	2	3	4	5	6	7	8
1650	35,5-36,5 (34,5-37,5)	1900* 7,0-7,4 mm RW	1200 600	34,5-36,5 (33,5-37,5) 34,5-36,5 (33,5-37,5)	100 375 1900	min. 53,0 6,0-7,0 (5,5-9,0) 16,0-20,0 (15,0-21,0)	6,0 1,0 (1,5) 2,5 (3,0) See Point 8 a

Checking values in brackets

ca. 4,7 less control rod travel than in Column 2

**BOSCH**

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung  
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Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

12.85

1. \*\* Checking the idle speed auxiliary spring setting at  $n = 450 \text{ rpm}$ , control rod travel (4,7-5,1 mm).
2. Adjusting the idle control-lever position:  
At  $700 \text{ min}^{-1}$ , control-rod travel 1,4 - 1.5 mm.
3. Testing the idle-speed auxiliary spring shutoff  
Control-lever position  $47^{\circ}$ . No change in control-rod travel after switching point up to  $550 \text{ min}^{-1}$ .  
Control-lever position  $30^{\circ}$ . Rotational-speed range  $350 \text{ min}^{-1}$  -  $450 \text{ min}^{-1}$ .
4. Testing the pneumatic shutoff box  
Control lever against idle stop.  
At  $n = 375 \text{ min}^{-1}$  and 450 mbar (vacuum) (338 mmHg) the control rod must move briskly to RW (control-rod travel) = 0 mm.

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 VOL 4,5 g

4. Edition

En

Testoil-ISO 4113

PES 4 MW 100/320 RS 1102  
0 403 474 001  
\*

RSV 300-1000 MW 1 A 315

supersede 10.84  
company Volvo  
TD 45  
engine 84 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $2,80-2,90$   
 $(2,75-2,95)$  mm (from BDC) bei RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre tensioning (torque control valve) mm
1	2	3	4	2	3	6
700*	11,9+0,1	10,9-11,1	0,35(0,6)			
300	5,6-5,7	1,3-1,7	0,35(0,55)			
1000	11,9+0,1		0,55(0,7)			

\* At the minimum full-load stop, set a control-rod travel of 12.6-12.7 mm with n = 1000 min/1. At the maximum full-load stop, make the full-load adjustment according to test specifications.

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0				ca. 12	300	5,1-5,2		
ca. 52		10,9 1040-1050 4,0 1055-1085					300 360-420 = 2,0	5,6-5,7		
2a		0,3-1,7 1200								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to ) rev/min							
rev/min	cm <sup>3</sup> /1000 strokes	3		rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
700	109,0-111,0 (107,0-113,0)	1040-1050*		1000	110,0-114,0 (107,5-116,5)	300	13,0-17,0 (10,5-19,5)	300	5,6-5,7

Checking values in brackets

\* 1 mm less control rod travel than col 2

4.85

**BOSCH**

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B24



# Test Specifications Fuel Injection Pumps and Governors

Testoil-ISO 4113

PES 5 M 55 C 320 RS 108-1  
RSF 350/2300 M 15  
Komb.-Nr. 0 400 075 991 Sales model 0 400 075 989

supersedes 1.85  
company Daimler-Benz  
engine OM 617 (65 kW)

1 - 2 - 4 - 5 - 3  
0 - 72-144-216-288

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $2,20-2,30$  mm (from BDC)  $20$  mm Control rod travel  
 $(2,15-2,35)$

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (compensating valve) mm
1	2	3	4	2	3	6
1000	13,4 <sup>+0,1</sup>	3,9-4,0	0,25(0,30)			
350	6,0-6,2	0,6-0,7	0,1 (0,15)			
1800			0,25(0,3)			
2200			0,25(0,3)			

Set uniform delivery according to the values in [ ]

Checking values in brackets

## B. Governor Settings

Lower rated speed			Upper rated speed			Variations in control rod travel	
Degree of deflection of control lever	Control rod travel mm	Rotational speed rev/min	Degree of deflection of control lever	Control rod travel mm	Rotational speed rev/min	Rotational speed rev/min	Control rod travel mm
1	2	3	4	5	6	7	8
9-13	min. 10,0 max. 9,5	250 300	50	12,5-12,7 8,6-9,0	2200 2500	100 1800 1000	min. 20,1 13,0-13,2 13,4-13,5
	6,0-6,2 4,6-4,8	350 450 **					
	2,0	720-820		0-1,0	2950		
							Switching point

## C. Settings for Fuel Injection Pump with Governor Mounted

Full load delivery (19)		Full load speed regulation (8a)	Variations in fuel delivery (17)		Starting fuel delivery idle (18)		Difference
Test oil temp 40°C (104°F)	rev/min	rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	cm <sup>3</sup> /1000 strokes
1	2	3	4	5	6	7	8
2200	39,5-41,5 (38,5-42,5)	2500* RW 8,6-9,0	1800	39,0-41,0 (38,0-42,0)	100	min. 53,0	6,0 (12a)
			1000	39,0-40,0 (38,0-41,0)	350	6,0-7,0 (5,5-9,0)	1,0 (15)
					2500	23,0-27,0 (22,0-28,0)	2,5 See Point 8 a (16)

Checking values in brackets

\*ca. 4,0 less control rod travel than in Column 2

1. \*\* Checking the idle speed auxiliary spring setting at  $n = 450$  rpm, control rod travel (4,5-4,7).
2. Adjusting the idle control-lever position:  
At  $1000 \text{ min}^{-1}$ , control-rod travel 1,4 - 1.5 mm.
3. Testing the idle-speed auxiliary spring shutoff  
Control-lever position  $47^{\circ}$ . No change in control-rod travel after switching point up to  $550 \text{ min}^{-1}$ .  
Control-lever position  $30^{\circ}$ . Rotational-speed range  $350 \text{ min}^{-1}$  -  $450 \text{ min}^{-1}$ .
4. Testing the pneumatic shutoff box  
Control lever against idle stop.  
At  $n = 375 \text{ min}^{-1}$  and 450 mbar (vacuum) (338 mmHg) the control rod must move briskly to RW (control-rod travel) = 0 mm.

# Test Specifications Fuel Injection Pumps and Governors

Testoil-ISO 4113

PES 4 M 55 C 320 RS 152-3  
RSF 375/2300 M 55-4  
Komb.-Nr. 0 400 074 936  
1- 3- 4 - 2  
0-90-180-270

supersedes 3.85  
company Daimler-Benz  
engine OM 601  
53 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $2,00-2,10$  mm (from BDC)  
(1,95-2,15) Control rod travel  
RW = 20,0-22,0 mm

Note: Before starting testing, observe the important instructions on the reverse.

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (compensating valve) mm
1	2	3	4	2	3	6
1000	11,1+0,1	3,1-3,2	0,25(0,3)			
375	5,4-5,6	0,5-0,6	0,1 (0,15)			
1800			0,25(0,3)			
2200			0,25(0,3)			

Set uniform delivery according to the values in [ ]

Checking values in brackets

## B. Governor Settings

Lower rated speed			Upper rated speed			Variations in control rod travel		
Degree of deflection of control lever	Control rod travel mm	Rotational speed rev/min	Degree of deflection of control lever	Control rod travel mm	Rotational speed rev/min		Rotational speed rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
13-17	① min. 11,5	250	50	⑦ 11,1-11,2	1000		⑫ 100	min. 20,1
	② 5,4-5,6	375		⑧ 7,8-8,2	2500		⑬ 1800	10,8-11,0
	③ 4,4-4,6	400 **		⑨ -			⑭ 2200	10,3-10,5
	④ 1,5	630-730		⑩ 0-1,0	2900			
	⑤			⑪			⑥	Switching point

## C. Settings for Fuel Injection Pump with Governor Mounted

Full load delivery		Full load speed regulation	Variations in fuel delivery		Starting fuel delivery idle		Difference
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	cm <sup>3</sup> /1000 strokes
1	2	3	4	5	6	7	8
2200	33,0-35,0 (32,0-36,0)	2500 * RW = 7,8-8,2	1800	34,0-35,5 (33,0-36,5)	100	min. 55	6,0
					375	5,0-6,0 (4,5-9,0)	1,0
			1000	31,0-32,0 (30,0-33,0)	2500	22,0-26,0 (21,0-27,0)	(1,5)
							2,5 See Point 8 a

Checking values in brackets

\*ca. 2,4 less control rod travel than in Column 2

1. \*\* Checking the idle speed auxiliary spring setting at  $n = 400$  rpm, control rod travel (4.3-4.7 mm).
2. Setting the idle control lever position:  
At 1000 rpm, control rod travel 0.9 - 1.0 mm.
3. Checking the idle speed auxiliary spring shut-off  
Control lever position  $50^\circ$ , after change-over point (from starting curve) until 1000 rpm, max. permissible control rod travel 0.2 mm.  
Control lever position  $48.5^\circ$ ; after change-over point (from starting curve) control rod travel must be greater than 0.2 mm.
4. Checking the pneumatic shut-off box  
Control lever on idle stop.  
AT  $n = 375$  rpm and  $p_u = 450$  mbar, the control rod must travel rapidly to control rod position = 0 mm.
5. Overflow valve 1 469 990 351,
6. Port closing difference between largest/smallest value max.  $1^\circ$  camshaft angle.
7. Setting the idle speed control rod travel on the pneumatic idle boost box  
When doing this, release the lock nut.
8. Checking the pneumatic idle boost:  
With 0.4 bar vacuum,  $n = 425$  rpm, control rod travel = (7.0 - 8.6 mm)  
Delivery = (11.0 - 19.0  $\text{cm}^3/1000$  strokes).
9. Apply 0.8 bar vacuum to the pneumatic idle boost box via a three-way valve and a pressure gauge. Using the three-way valve, disconnect the vacuum supply from the pneumatic idle boost box and pressure gauge. Permissible pressure drop 30 mbar in 15 sec.
10. Start-of-delivery sensor setting  
Start-of-delivery sensor setting and locking according to average port closing value for all cylinders  $19.5 \pm 0.2$  ( $0.3^\circ$ ) camshaft angle after cylinder 1.

En

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MWM 8,8 a

5. Edition

En

PE 6 A 100 C D	320 RS 3008	EP/RSV 300-1150 A 1 B 489 DR A 1 C 489 DR	supersedes 8.84 company MWM engine D/TD 232 - 6 D/TD 232 - 8
PE 8 A 100..	RS 3009	EP/RSV 300-1150 A 1 B 489 DR A 1 C 489 DR	
Instructions P. 3		RQV 300/550-750 AB 660 R, 871 R	

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\frac{2,0-2,1}{(1,95-2,15)}$  mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre tensioning (torque control valve) mm
1	2	3	4	2	3	6
1130	9,5-9,6	9,0-9,2	0,35(0,6)			
300	6,0-7,1	1,5-2,1	0,35(0,5)			

Adjust the fuel delivery from each outlet according to the values in

Testteil-ISO 4113

## B. Governor Settings

① Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			④ Control lever deflection in degrees 7	Lower rated speed		③ Torque control	
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-0,7	-	-	-	ca. 25	300	5,5	See note	
	x = 4,0						300 485-545	5,9-6,1 = 2,0		
ca. 60 ②a	8,5 4,0 1400	1170-1180 1200-1230 0,3-1,4								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

②b Full load stop Test oil temp 40 C (104 F)		⑥ Rotational speed limit Note changed to ) rev/min 3	③a Fuel delivery characteristics		Starting fuel delivery Idle		④a Idle stop	
rev/min 1	cm <sup>3</sup> /1000 strokes 2		rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
See page 4-14		-	-	-	100	15,7-16,3 mm RW	-	-

Checking values in brackets

\* 1 mm less control rod travel than col 2

4.85

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C5

65

### B. Governor Settings

RQV .. 660R, 871R \*\*

① Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 66	750	14,8-17,8	ca. 34	520	13,7-15,5	ca. 10	250	6,8-8,0		
	770	9,0-14,0		600	8,5-10,0		300	4,5-7,0		
	790	3,5-10,5		650	4,5-7,0		350	3,6-4,0		
	800	0 - 8		720	0		550	1,8-4,0		
⑤	840	0					630	0		

The numbers denote the sequence of the tests

### C. Settings for Fuel Injection Pump with Fitted Governor

② Full load stop		⑥ Rotational-speed limitat	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop		
Test oil temp 40°C (104°F)		Note changed to rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	
See page 4-14						100	15,7-16,3 mm RW		
			⑥a			300	5,3-5,7 mm RW		

Checking values in brackets

\* 1 mm less control rod travel than col 2

### B. Governor Settings

① Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
⑤										

The numbers denote the sequence of the tests

### C. Settings for Fuel Injection Pump with Fitted Governor

② Full load stop		⑥ Rotational-speed limitat	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9

Checking values in brackets

\* 1 mm less control rod travel than col 2

1A

C6

c6

En

\*\* Governor ..871R = electromagnetic starting fuel delivery  
unlocking (24 volt)  
Switch on magnet for max. 15 sec. when testing.

The nameplate described at MWM 1.5 a has recently been  
extended to 2 speeds and 2 deliveries - in column n =  
(speed) and Q = (full-load delivery) for more accurate  
setting in the case of governors with torque control.

The following points apply, deviating from WPP 001/4,  
Supplement 1, setting the governor and the pump:

(2) Setting according to nameplate n = (speed 1) and  
Q = (delivery 1); or according to columns 1 and 2

(3) Is contacted until change of control-rod travel,  
as read under (2), or (with new nameplate) until  
the 2 delivery is reached at speed 2; or according to  
columns 4 and 5

(6) Is adjusted according to nameplate n = (speed 1 +  
20 rpm) or column 3

For repairs on Fendt tractors on which the new nameplate  
(with 2 speeds and 2 deliveries) has not yet been intro-  
duced, the full-load data apply - ordered according to  
engine types -

according to the above note

In the case of new replacement pumps from Stuttgart  
warehouse there is no spring retainer. Send for from  
MWM according to old nameplate.

Cam sequence and angular spacing:

PE 6 A:

1 - 6 - 3 - 2 - 5 - 4

0 -90 -120-210-240-330°

PE 8 A:

1 - 8 - 5 - 4 - 7 - 2 - 3 - 6

0 -30 -90 -120-180-210-270-300°

En

C7

**C: Settings for Fuel Injection Pump with Fitted Governor**

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	
<b>F 165 PS / 2500 min<sup>-1</sup></b>								
1250	81,0-83,0	1270	750	82,5-85,5				
<b>B'162 PS / 2500 min<sup>-1</sup></b>								
1250	81,0-83,0	1270	750	82,5-85,5				
<b>B 162 PS / 2500 min<sup>-1</sup></b>								
1250	81,0-83,0	1270						
<b>F 160 PS / 2300 min<sup>-1</sup></b>								
1150	80,0-82,0	1170	750	82,5-85,5				
<b>B'155 PS / 2300 min<sup>-1</sup></b>								
1150	80,0-82,0	1170	750	82,5-85,5				
<b>B 155 PS / 2300 min<sup>-1</sup></b>								
1150	80,0-82,0	1170						
<b>A 141 PS / 2300 min<sup>-1</sup></b>								
1185	76,0-78,0	1200						
<b>B'144 PS / 2100 min<sup>-1</sup></b>								
1050	77,0-79,0	1060	750	82,5-85,5				
<b>B 144 PS / 2100 min<sup>-1</sup></b>								
1050	77,0-79,0	1060						
<b>A 131 PS / 2100 min<sup>-1</sup></b>								
1080	73,0-75,0	1090						
<b>F 144 PS / 2000 min<sup>-1</sup></b>								
1000	77,0-79,0	1010	750	82,5-85,5				
<b>B'138 PS / 2000 min<sup>-1</sup></b>								
1000	77,0-79,0	1010		82,5-85,5				

Checking values in brackets

\* 1 mm less control rod travel than col. 2

Testoil-ISO 4113



**C: Settings for Fuel Injection Pump with Fitted Governor**

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	mm
1 <sup>*</sup>	2	3	4	5	6	7	8	

**B 138 PS / 2000 min<sup>-1</sup>**

1000 77,0-79,0 1010

**A 126 PS / 2000 min<sup>-1</sup>**

1030 73,0-75,0 1040

**B 127 PS / 1800 min<sup>-1</sup>**

900 78,0-80,0 910

**A' 115 PS / 1800 min<sup>-1</sup>**

900 78,0-80,0 910

**A 115 PS / 1800 min<sup>-1</sup>**

930 74,0-76,0 940

**B 108 PS / 1500 min<sup>-1</sup>**

750 80,0-82,0 760

**A' 98 PS / 1500 min<sup>-1</sup>**

750 80,0-82,0 760

**A 98 PS / 1500 min<sup>-1</sup>**

775 76,0-78,0 785

**B 162 PS / 2300 min<sup>-1</sup>**1150 83,0-85,0 1170  
Special output**D 143 PS / 1800 min<sup>-1</sup>**900 89,0-91,0 910  
Emergency power output**C 130 PS / 1800 min<sup>-1</sup>**900 89,0-91,0 910  
Emergency power output

En

Checking values in brackets

\* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

**C: Settings for Fuel Injection Pump with Fitted Governor**

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

D 120 PS / 1500 min<sup>-1</sup>

750 90,0-92,0 760

Emergency power output

C 109 PS / 1500 min<sup>-1</sup>

750 90,0-92,0 760

Emergency power output

Testoil-ISO 4113

**C: Settings for Fuel Injection Pump with Fitted Governor**

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	
<b>F 220 PS / 2500 min<sup>-1</sup></b>								
1250	81,0-83,0	1270	750	82,5-85,5				
<b>B'216 PS / 2500 min<sup>-1</sup></b>								
1250	81,0-83,0	1270	750	82,5-85,5				
<b>B 216 PS / 2500 min<sup>-1</sup></b>								
1250	81,0-83,0	1270						
<b>F 213 PS / 2300 min<sup>-1</sup></b>								
1150	80,0-82,0	1170	750	82,5-85,5				
<b>B'206 PS / 2300 min<sup>-1</sup></b>								
1150	80,0-82,0	1170	750	82,5-85,5				
<b>B 206 PS / 2300 min<sup>-1</sup></b>								
1150	80,0-82,0	1170						
<b>A 188 PS / 2300 min<sup>-1</sup></b>								
1185	76,0-78,0	1200						
<b>B'192 PS / 2100 min<sup>-1</sup></b>								
1050	77,0-79,0	1060	750	82,5-85,5				
<b>B 192 PS / 2100 min<sup>-1</sup></b>								
1050	77,0-79,0	1060						
<b>A 175 PS / 2100 min<sup>-1</sup></b>								
1080	73,0-75,0	1090						
<b>F 192 PS / 2000 min<sup>-1</sup></b>								
1030	77,0-79,0	1040	750	82,5-85,5				
<b>B'184 PS / 2000 min<sup>-1</sup></b>								
1000	77,0-79,0	1010	750	82,5-85,5				

Checking values in brackets

\* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

**C: Settings for Fuel Injection Pump with Fitted Governor**

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

**B 184 PS / 2000 min<sup>-1</sup>**  
 1000 77,0-79,0 1010

**A 168 PS / 2000 min<sup>-1</sup>**  
 1000 73,0-75,0 1010

**B 169 PS / 1800 min<sup>-1</sup>**  
 930 78,0-80,0 940

**A' 154 PS / 1800 min<sup>-1</sup>**  
 900 78,0-80,0 910

**A 154 PS / 1800 min<sup>-1</sup>**  
 900 74,0-76,0 910

**B 144 PS / 1500 min<sup>-1</sup>**  
 775 80,0-82,0 785

**A' 130 PS / 1500 min<sup>-1</sup>**  
 750 80,0-82,0 760

**A 130 PS / 1500 min<sup>-1</sup>**  
 750 76,0-78,0 760

**B 216 PS / 2300 min<sup>-1</sup>**  
 1150 83,0-85,0 1170  
 Special output

**D 190 PS / 1800 min<sup>-1</sup>**  
 900 89,0-91,0 910  
 Emergency power output

**C 173 PS / 1800 min<sup>-1</sup>**  
 900 89,0-91,0 910  
 Emergency power output

**Testoil-ISO 4113**

**C: Settings for Fuel Injection Pump with Fitted Governor**

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

D 160 PS / 1500 min<sup>-1</sup>

750 90,0-92,0 760  
Emergency power output

C 145 PS / 1500 min<sup>-1</sup>

750 90,0-92,0 760  
Emergency power output

Testoil-ISO 4113

Checking values in brackets

\* 1 mm less control rod travel than col. 2

**C. Settings for Fuel Injection Pump with Fitted Governor**

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	
<b>F 210 PS / 2300 min<sup>-1</sup></b>								
1150	105,0-107,0	1170	800	104,5-107,5				
<b>B'207 PS / 2300 min<sup>-1</sup></b>								
1150	105,0-107,0	1170	800	104,5-107,5				
<b>B 207 PS / 2300 min<sup>-1</sup></b>								
1150	105,0-107,0	1170						
<b>A 188 PS / 2300 min<sup>-1</sup></b>								
1185	101,0-103,0	1200						
<b>B'192 PS / 2100 min<sup>-1</sup></b>								
1050	103,0-105,0	1060	800	104,5-107,5				
<b>B 192 PS / 2100 min<sup>-1</sup></b>								
1050	103,0-105,0	1060						
<b>A 174 PS / 2100 min<sup>-1</sup></b>								
1080	99,0-101,0	1090						
<b>F 192 PS / 2000 min<sup>-1</sup></b>								
1000	102,0-104,0	1010	800	104,5-107,5				
<b>B'184 PS / 2000 min<sup>-1</sup></b>								
1000	102,0-104,0	1010	800	104,5-107,5				
<b>B 184 PS / 2000 min<sup>-1</sup></b>								
1000	102,0-104,0	1010						
<b>A 167 PS / 2000 min<sup>-1</sup></b>								
1030	98,0-100,0	1040						
<b>B 168 PS / 1800 min<sup>-1</sup></b>								
900	101,0-103,0	910						

Checking values in brackets

\* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

①

**C: Settings for Fuel Injection Pump with Fitted Governor**

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

A'153 PS / 1800 min<sup>-1</sup>

900 101,0-103,0 910

A 153 PS / 1800 min<sup>-1</sup>

930 97,0-99,0 940

B 142 PS / 1500 min<sup>-1</sup>

750 100,0-102,0 760

A'129 PS / 1500 min<sup>-1</sup>

750 100,0-102,0 760

A 129 PS / 1500 min<sup>-1</sup>

775 96,0-98,0 785

Testoil-ISO 4113

**C: Settings for Fuel Injection Pump with Fitted Governor**

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation rev/min	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm <sup>3</sup> /1000 strokes		rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	
<b>F 292 PS / 2500 min<sup>-1</sup></b>								
1250	102,0-104,0	1270	800	100,5-103,5				
<b>B'292 PS / 2500 min<sup>-1</sup></b>								
1250	102,0-104,0	1270	800	100,5-103,5				
<b>B 292 PS / 2500 min<sup>-1</sup></b>								
1250	102,0-104,0	1270						
<b>F 280 PS / 2300 min<sup>-1</sup></b>								
1150	100,0-102,0	1170	800	100,5-103,5				
<b>B'275 PS / 2300 min<sup>-1</sup></b>								
1150	100,0-102,0	1170	800	100,5-103,5				
<b>B 275 PS / 2300 min<sup>-1</sup></b>								
1150	100,0-102,0	1170						
<b>A 250 PS / 2300 min<sup>-1</sup></b>								
1185	96,0-98,0	1200						
<b>B'255 PS / 2100 min<sup>-1</sup></b>								
1050	99,0-101,0	1060	800	100,5-103,5				
<b>B 255 PS / 2100 min<sup>-1</sup></b>								
1050	99,0-101,0	1060						
<b>A 232 PS / 2100 min<sup>-1</sup></b>								
1080	95,0-97,0	1060						
<b>F 256 PS / 2000 min<sup>-1</sup></b>								
1000	99,0-101,0	1010	800	100,5-103,5				
<b>B'245 PS / 2000 min<sup>-1</sup></b>								
1000	99,0-101,0	1010	800	100,5-103,5				

Checking values in brackets

\* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

①



**C. Settings for Fuel Injection Pump with Fitted Governor**

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

B 245 PS / 2000 min<sup>-1</sup>

1000 99,0-101,0 1010

A 222 PS / 2000 min<sup>-1</sup>

1030 95,0-97,0 1040

B 224 PS / 1800 min.<sup>-1</sup>

900 99,0-101,0 910

A' 203 PS / 1800 min<sup>-1</sup>

900 99,0-101,0 910

A 203 PS / 1800 min<sup>-1</sup>

930 95,0-97,0 940

B 189 PS / 1500 min<sup>-1</sup>

750 98,0-100,0 760

A' 172 PS / 1500 min<sup>-1</sup>

750 98,0-100,0 760

A 172 PS / 1500 min<sup>-1</sup>

750 94,0-96,0 760

D 250 PS / 1800 min<sup>-1</sup>900 111,0-113,0 910  
Emergency power outputC 227 PS / 1800 min<sup>-1</sup>900 111,0-113,0 910  
Emergency power outputD 210 PS / 1500 min<sup>-1</sup>

750 111,0-113,0 760

Checking values in brackets

\* 1 mm less control rod travel than col 2

Testoil-ISO 4113

**C: Settings for Fuel Injection Pump with Fitted Governor**

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

C 191 PS / 1500 min<sup>-1</sup>

750 111,0-113,0 760

Testoil-ISO 4113

Checking values in brackets

\* 1 mm less control rod travel than col 2

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 11,6 i

6. Edition

En

PE 6 P 110 A 320 RS 372

RSV 250-1100 P 5/458 R

supersedes 5.84

Komb.-Nr. 0 401 876 235

company DAF

Note VDT-I-420/114!

engine DKTD 1160

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke <sup>2,8-2,9</sup> (2,75-2,95) mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre tensioning (torque-control valve) mm 6
850	12,0+0,1	13,7-14,0	0,4 (0,75)			
250	6,6-6,8	0,7-1,2	0,45(0,75)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

① Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			④ Control lever deflection in degrees 7	Lower rated speed		③ Torque control	
	mm 2	mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 21	250	6,2	400	12,2-12,3
	x = 3,5						250	6,6-6,8	300	12,4-12,9
ca. 51	11,0	1140-1150					640-700	= 2,0		
②a	4,0	1275-1305								
	1425	0,3-1,7								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp 40° C (104° F)		⑥ Rotational-speed limit Note changed to 1 rev/min 3	③a Fuel delivery characteristics		Starting fuel delivery Idle ⑤		④a Idle stop	
rev/min 1	cm <sup>3</sup> /1000 strokes 2		rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 850	0,7 bar 136,5-139,5 (134,0-142,0)	1140-1150 *	LDA 600	0 bar 127,5-130,5 (125,0-133,0)	100	245,0-285,0 (241,0-289,0) = 19,5 - 21,0 mm RW	250	6,7

Checking values in brackets

\* 1 mm less control rod travel than col 2

8.85

**BOSCH**

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C19

C19

# D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 i

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure  
 increasing

Pump/governor	Setting Gauge pressure - bar	Measurement		Control rod travel - mm (1)	diminution difference
		Gauge pressure - bar	bar		
PE 6 P.. RS 372 + RSV.. P5/458 R	0,70				12,0-12,1
		0			11,4-11,5
		0,30			11,8-11,9
		0,26			11,5-11,7

Notes

(1) when n = rev/min and gauge pressure - bar ( - maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 DAF 11,6K1  
4. Edition

En

Testoil-ISO 4113

PE6P120A320RS372

RQ250/1100PA 417 R

supersedes 11.82  
DAF  
company  
engine DKS 1160

Komb.-Nr. 0 401 846 396

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke (2,80-2,98) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
850	10,9-11,0	19,3 - 19,7	0,5(0,9)			
250	6,2-6,4	1,1 - 1,5	0,65(0,95)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point ①				Idle speed regulation Setting point ④				Torque control ③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	12
700	15,6-16,4	700	16,0	9,9 4,0 13,0	1145-1160 1210-1240 0 - 1,0	250	6,3	100 250 445-185=2,0	min.7,4 6,2-6,4	850 1100	10,9-11,0 10,8-11,0

Torque-control travel on flyweight assembly dimension a =  mm      Speed regulation: At 1145-1160 min<sup>-1</sup>      1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel cm <sup>3</sup> /1000 strokes/mm
1	2	3	4	5	6	7
LDA	0,7 bar	-	LDA	0 bar	100	320,0 - 360,0 = 19,5-21,0 mm RW
850	193,0 - 197,0 (190,0 - 200,0)		600	133,5-137,5 (130,0-141,0)	250	6,3 mm RW

Checking values in brackets

# D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 k 1 - 1 -

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure  
 increasing

Pump/governor	Setting		Measurement		Control rod travel diminution difference mm (1)
	Gauge pressure	bar	Gauge pressure -	bar	
FE 6 P..RS 370 + RQ .. FA 417 R	0,70		0 0,30 0,26		10,9- 11,0 9,8- 9,9 10,6- 10,7 10,0- 10,2

**Notes**

(1) when n = rev/min and gauge pressure = bar ( = maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps ② and Governors

En

PE6P120A 320 RS 372-1 RQ 250/1000 PA 417-3

Komb-Nr. 0 401 846 503

supersedes 7.84  
company DAF  
engine DKSB  
215 kW

Values only apply to test nozzle-and-holder assembly  
1 688 901 019 and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke 2,8-2,9  
(2,75-2,95) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
850	11,2+0,1	17,9-18,1	0,5(0,9)			
250	6,6-6,8	1,4-2,0	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

## B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point ①				Idle speed regulation Setting point ④				Torque control ③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	12
700	15,6-16,4	700	16,0	10,2 4,0 1250	1035-1050 1095-1125 0-1,0	250	6,3	100 250 445-485=2,0	min.7,4 6,2-6,4 85=2,0	850	11,4-11,5
										1000	11,3-11,5

Torque-control travel on flyweight assembly dimension a = 0 mm      Speed regulation: At 1035-1050 min<sup>-1</sup>      1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min	cm <sup>3</sup> /-1000 strokes	rev/min	rev/min	cm <sup>3</sup> /-1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes/mm
1	2	3	4	5	6	7
LDA 850	0,7 bar 179,0-181,0 (176,0-184,0)	-	LDA 600	0 bar 135,5-137,5 (132,5-140,5)	100	305,0-345,0 (301,0-349,0)
					250	6,2-6,4 mm RW

Checking values in brackets

# D. Adjustment Test for Manifold Pressure Compensator

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure  
 increasing

Pump/governor	Setting Gauge pressure : bar	Measurement		Control rod travel mm (1)	diminution difference
		Gauge pressure : bar	Gauge pressure : bar		
PE6P..RS 372-1 +RQ..PA 417-3	0,70		0	11,2-11,3	
			0,33	10,2-10,3	
			0,30	10,9-11,0	
				10,4-10,6	

Notes

(1) when n = rev/min and gauge pressure : bar ( : maximum full load control rod travel)



# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 8,3 1 3

1. Edition

En

PE 6 P 100 A 720 RS 373

RSV 250-1200 P0/447 R

supersedes-

company DAF

engine DHU 825

169 kW

Komb.-Nr. 0 401 876 230

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\begin{matrix} 2,5 - 2,6 \\ (2,45-2,65) \end{matrix}$  mm (from BD $\hat{c}$ ) RW = 9,0-12,0 mm

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12,3+0,1	12,7-12,9	0,35(0,6)			
250	7,2-7,4	0,8-1,2	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
	mm 2	mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	--	--	--	ca. 23	250	6,8	400	12,5-12,6
	x = 4,5						250	7,2-7,4	300	12,7-13,2
ca. 51	11,3	1240-1250					560-620	= 2,0		
2a	4,0	1350-1380								
	1500	0,3-1,7								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note changed to ) rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery Idle 5		4a Idle stop	
rev/min 1	cm <sup>3</sup> /1000 strokes 2		rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1000	0,7 bar 127,0-129,0 (125,0-131,0)	1240-1250*	LDA 500	0 bar 89,5-92,5 (87,5-94,5)	100	195,0-215,0 (191,0-219,0)	250	7,3

Checking values in brackets

\* 1 mm less control rod travel than col 2

D1

9.85

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# D. Adjustment Test for Manifold Pressure Compensator DAF 8,3 1 3

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure  
 increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 P..RS 373 + RSV..P0/447 R	0,70	0	12,3-12,4
		0,22	11,1-11,2
		0,15	12,0-12,1 11,4-11,8

Notes

(1) when n = rev/min and gauge pressure = bar ( = maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps ② and Governors

PES 6 P 110 A 720 LS 375  
Komb.-Nr. 0 402 046 315

RQ 250/1100 PA 752

supersedes  
companyMAN  
engine D 2566 MTUE

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\overset{3,0-3,1}{(2,95-3,15)}$  mm (from BDC) Cyl. 6; RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	12,1+0,1	13,9-14,2	0,4(0,75)			
250	7,4-7,6	1,0-1,5	0,45(0,75)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

## B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
600	19,2-20,8	600	20,0	11,1	1145-1160	250	7,5	100	min. 8,9	1100	12,1-12,2
VH =	max. 46 °			4,0 1350	1190-1220 0 - 1,0			250	7,4-7,6	700	12,1-12,3

Torque-control travel on flyweight assembly dimension a = 0 mm      Speed regulation At 1145-1160 min<sup>-1</sup>      1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a	③b		⑥	
rev/min	cm <sup>3</sup> /-1000 strokes	rev/min	rev/min	cm <sup>3</sup> /-1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes / mm
1	2	3	4	5	6	7
LDA 1100	0,7 bar 139,0-142,0 (136,5-144,5)	-	LDA 500	0,2 bar 126,0-130,0 (123,0-133,0)	100	225,0-245,0 (221,0-249,0)
LDA 700	0,7 bar 132,0-138,0 (129,0-141,0)		LDA 500	0 bar 113,0-116,0 (110,5-118,5)	250	10,0-15,0 (7,5-17,5)

Checking values in brackets

# D. Adjustment Test for Manifold Pressure Compensator

MAN 11,1 q 30 - 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
 increasing

Pump/governor	Setting	Measurement	Control rod travel	diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)	
PES 6 P..LS375 + RQ.. PA 752	0,70	0 0,20	12,1-12,2 11,5-11,6 11,9-12,0	

**Notes**

(1) when n = rev/min and gauge pressure = bar ( = maximum full load control rod travel)

D4

D4  
En

# Test Specifications Fuel Injection Pumps ① and Governors

PE 6 P 110 A 720 RS 3034 T  
Komb.-Nr. 0 401 846 709 T

RQV 200-1200 PA 275 R

supersedes -  
company Scania  
engine DS 804

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke <sup>3,3-3,4</sup> (3,25-3,45) mm (from BDC); cyl. 1; RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	12,6+0,1	11,7-11,9	0,5(0,7)			2,4-2,6 (2,2-2,9)
225	5,9-6,1	1,5-1,9	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1200	15,2-17,8	-	-	-	ca. 9	100	min.7,4		
ca. 62	11,6 4,0 1500	1240-1250 1380-1410 0-1,0					225 410-470=2,0	5,9-6,1		

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) ②		Rotational-speed limitation intermediate speed ④a	Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 600	0,9 bar 117,0-119,0 (115,0-121,0)	1240-1250*	LDA 1200	0,9 bar 123,5-128,5 (122,0-130,0)	100	190,0-240,0	-	-
			LDA 500	0 bar 81,0-85,0 (79,0-97,0)				

Checking values in brackets

\* 1 mm less control rod travel than col 2

# D. Adjustment Test for Manifold Pressure Compensator

SCA 8,0 d 1

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
 increasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure - bar	Gauge pressure - bar	mm (1)
PE 6 P..RS 3034 T + RQV..PA 275 R	0,9	0	12,6-12,7
		0,37	11,0-11,1
		0,26	12,0-12,1
			11,3-11,5

Notes  
 (1) when n = rev/min and gauge pressure bar ( maximum full load control rod travel)

## S U P P L E M E N T A R Y I N F O R M A T I O N

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-I-400/117
- Test specifications approved by Scania on 22.8.1983
- Start of fuel delivery-engine: 15° before TDC
- Firing sequence, engine : 1-5-3-6-2-4

# Test Specifications Fuel Injection Pumps ① and Governors

DE 5 P 110 A 720 RS 3040 T  
Komb.-Nr. 0 401 846 710 T

RQV 250-1050 PA 379 R

supersedes -  
company: Scania  
engine DS 1111

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke <sup>3,3-3,4</sup>  
(3,25-3,45) mm (from BDC) ; cyl. 1; RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	13,4+0,1	17,0-17,2	0,6(0,8)			3,2-3,4 (3,0-3,5)
225	4,4-4,6	1,7-2,1	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1100	15,2-17,8	-	-	-	ca. 10	100	min.5,9		
ca. 62	12,4 4,0 1400	1090-1100 1235-1265 0-1,0					225 310-370=2,0	4,4-4,6		

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point	Torque-control travel		
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 600	0,9 bar 170,0-172,0 (168,0-174,0)	1090-1100*	LDA 1050	0,9 bar 164,5-169,5 (162,0-172,0)	100	240,0-290,0	-	-
			LDA 500	0 bar 128,0-132,0 (126,0-134,0)				

Checking values in brackets

\* 1 mm less control rod travel than col 2

# D. Adjustment Test for Manifold Pressure Compensator

SCA 11,0 r 9

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
 increasing

Pump/governor	Setting		Measurement		Control rod travel - diminution difference mm (1)
	Gauge pressure	bar	Gauge pressure =	bar	
PE 6 P..RS 3040 T + RQV..PA 379 R	0,9				13,4-13,5
			0		11,7-11,8
			0,37		12,7-12,8
			0,25		11,8-12,0

**Notes**

(1) when n

rev/min and  
gauge pressure -

bar ( : maximum full-load control rod travel)

## S U P P L E M E N T A R Y I N F O R M A T I O N

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-I-400/117
- Test specifications approved by Scania on 11.2.1985
- Start of fuel delivery-engine: 20° before TDC
- Firing sequence, engine : 1-5-3-6-2-4



# Test Specifications Fuel Injection Pumps ① and Governors

PES 6 P 110 A 720 RS 3149      RQV 350-1300 PA 772  
 Komb.-Nr. 9 400 087 334  
 Values only apply to test nozzle-and-holder assembly  
 1 688 901 017 and fuel-injection test tubing 1 680 750 008

supersedes -  
 company: Ford  
 engine: 66 TC  
 121,3 kW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\begin{matrix} 4,25-4,35 \\ (4,20-4,40) \end{matrix}$  mm (from BDC) Cyl. 1; RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1300	13,4+0,1	10,8-11,0	0,5(0,9)			
350	7,2-7,4	1,6-2,0	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in .

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1300	15,2-17,8	-	-	-	ca. 13	100	min.9,0	350	0,6-1,3
ca. 65	12,4 4,0 1650	1360-1370 1500-1530 0-1,0					350 600-660=2,0	7,2-7,4	500	2,3-2,7
						370-440			800	4,0-4,3
									1000	5,0-5,3
									1300	7,3

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5b	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1300	1,0bar 108,0-110,0 (105,0-113,0)	1360-1370*	LDA 600	1,0 bar 106,5-110,5 (104,5-112,5)	100	100,0-120,0 (96,0-124,0)		
			LDA 500	0 bar 79,5-81,5 (76,5-84,5)				

Checking values in brackets

\* 1 mm less control rod travel than col. 2

# D. Adjustment Test for Manifold Pressure Compensator

FOR 6,6 c

Test at n = **500** rev/min decreasing pressure - in bar gauge pressure  
 increasing

Pump/governor	Setting	Measurement	Control rod travel	diminution difference
	Gauge pressure bar	Gauge pressure bar	mm (1)	
PES 6 P..RS 3149 + RQV..PA 772	1,0	0	13,4-13,5	
		0,45	11,9-12,0	
		0,70	12,2-12,3	
			13,0-13,2	

Notes

(1) when n =

rev/min and gauge pressure =

bar ( maximum full-load control rod travel)

D10

# Test Specifications Fuel Injection Pumps ② and Governors

PE 12 P 120 A 520/4 LS 3828

RQ 1200 PA 660-1

supersedes-

1- 5- 9- 8- 3 - 4 - 11- 10- 2 - 6 - 7 - 12

company MAN

0-15-60-75-120-135-180-195-240-255-300-315° ± 0,5° (± 0,75°)

D 2842 LE  
559 kW

Values only apply to test nozzle-and-holder assembly

Komb.-Nr. 0 401 840 728

1 688 901 019 and fuel-injection test tubing 1 680 750 067

MAN-Nr. 2-7686

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

## A. Fuel Injection Pump Settings

Port closing at prestroke <sup>4,2-4,3</sup> (4,15-4,35) mm (from BDC) Zyl. 12

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1150	11,9+0,1	20,0-20,2	0,5(0,9)			
250	6,9-7,1	1,7-2,3	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Checking of slider PRG check		Full load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
-	-	-	-	10,9 4,0 1400	1195-1210 1285-1315 0-1,0	-	-	-	-	-	-

Torque-control travel on flyweight assembly dimension a = - mm      Speed regulation: At 1245-1250 min<sup>-1</sup>      1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery idle speed	
②		③a	③b		⑥	
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes / mm
1	2	3	4	5	6	7
1150	200,0-202,0 (197,0-205,0)	-	-	-	-	-

Checking values in brackets

# Test Specifications Fuel Injection Pumps ② and Governors

En

PE 12 P 120 A 520/4 LS 3828 RQ 250/1150 PA 739  
 1- 5- 9- 8- 3 - 4 - 11- 10- 2 - 6 - 7 - 12  
 0-15-60-75-120-135-180-195-240-255-300-315° ± 0,5° (± 0,75°)  
 Values only apply to test nozzle-and-holder assembly  
 1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes-  
 company MAN  
 engine D 2842 LE  
 Komb.-Nr. 0 401 840 724  
 MAN-Nr. 2-7593

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

## A. Fuel Injection Pump Settings

Port closing at prestroke  $4,2 - 4,3$   
 (4,15-4,35) mm (from BDC) Zyl. 12

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,4+0,1	19,5-19,7	0,5 (0,9)			
250	6,9-7,1	1,7-2,3	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Checking of slider PRG check rev/min 1		Control rod travel mm 2		Full-load speed regulation Setting point rev/min 3		Control rod travel mm 4		Test specifications Control rod travel mm 5		rev/min 6		Idle speed regulation Setting point rev/min 7		Control rod travel mm 8		Test specifications rev/min 9		Control rod travel mm 10		Torque control rev/min 11		Control rod travel mm 12	
550	19,2-20,8	550	20,0	10,4	1220-1235	250	7,0	100	min.8,5	1150	11,4-11,5							1150	11,4-11,5				
VH =	max. 46°			4,0	1415-1445			250	6,9-7,1	750	11,4-11,6												
								315-	355=2,0														

Torque-control travel on flyweight assembly dimension a =  mm Speed regulation. At 1220-1235 min<sup>-1</sup> 1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		cm <sup>3</sup> /-1000 strokes 2		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		cm <sup>3</sup> /-1000 strokes 5		Starting fuel delivery Idle speed rev/min 6		Control rod travel cm <sup>3</sup> /1000 strokes / mm 7	
LDA 1150	1,0 bar 195,0-197,0 (192,0-200,0)	-		LDA 750	1,0 bar 200,0-206,0 (197,0-209,0)	100	190,0-210,0 (186,0-214,0)						
				LDA 500	0 bar 119,0-121,0 (116,0-124,0)	250	17,0-23,0 (14,0-26,0)						

Checking values in brackets

# D. Adjustment Test for Manifold Pressure Compensator MAN 20,9 s

Test at n **500** rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting		Measurement		Control rod travel <span style="float: right;">diminution difference</span>	
	Gauge pressure	bar	Gauge pressure	bar	mm	(1)
PE 12 P..LS 3828 + RQ..PA 739	1,0					11,4-11,5
			0			8,9-9,0
			0,30			9,2-9,3
			0,52			10,7-11,0

Notes  
 (1) when n rev/min and gauge pressure = bar ( maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps ② and Governors

PE 6 P 120 A 720 RS 7004 RQ 750 PA 528-1

supersedes 9.84  
company: SAAB-SCANIA  
engine DN 11

Values only apply to test nozzle-and-holder assembly  
1 688 901 019 and fuel-injection test tubing 1 680 750 015

Komb.-Nr. 0 402 646 815

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\begin{matrix} 5,00-5,10 \\ (4,95-5,15) \end{matrix}$  mm (from BDC).

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	10,6±0,1	15,5-15,7	0,6(0,9)			3,3 ± 0,1 ** (3,0-3,5)

\*\* Due to smoothing of the sealing edge, the spring tension with a new delivery-valve holder must be adjusted 70 2,9 - 3,1 mm.

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Checking of slider PRG check rev/min 1		Control rod travel mm 2		①		Full-load speed regulation Setting point rev/min 3		Control rod travel mm 4		Test specifications rev/min 6		④		Idle speed regulation Setting point rev/min 7		Control rod travel mm 8		Test specifications rev/min 9		Control rod travel mm 10		⑤		Torque control rev/min 11		Control rod travel mm 12		③	
-	-	-	-	-	-	-	-	9,6	750-755	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
								4,0	773-786																				
								850	0-1,0																				

Torque-control travel on flyweight assembly dimension a = - mm Speed regulation:  $750-755 \text{ min}^{-1}$  1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F) rev/min 1		cm <sup>3</sup> /-1000 strokes 2		②		Control rod stop rev/min 3		③a		Fuel delivery characteristics rev/min 4		cm <sup>3</sup> /-1000 strokes 5		③b		Starting fuel delivery Idle speed rev/min 6		Control rod travel mm 7		⑥	
700	155,0-157,0 (152,0-160,0)	-	-	-	-	-	-	-	-	-	-	-	100	240-290 = 20,0-21,0 mm RW							

High idle speed:  
Zul. Streuung:  
4,0 (7,0)

Checking values in brackets

**S U P P L E M E N T A R Y   I N F O R M A T I O N**

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-I-400/117
- Test specifications approved by Scania on 19.9.1984
- Start of fuel delivery-engine: 18° before TDC
- Firing sequence, engine : 1-5-3-6-2-4

# Test Specifications Fuel Injection Pumps ② and Governors

PE 6 P 120 A 720 RS 7004

RQ 900 PA 528-2

supersedes 9.84

company Saab-Scania

engine DN 11

Values only apply to test nozzle-and-holder assembly Komb.-Nr. 0 402 646 814  
1 688 901 019 and fuel-injection test tubing 1 680 750 015

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $5,0-5,1$  mm (from BDC)  
(4,95-5,15)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
850	10,6+0,1	16,2 - 16,4	0,6(0,9)			3,3 <sup>±</sup> 0,1 (3,0-3,5) **

\*\* Due to smoothing of the sealing edge, the spring tension with a new delivery-valve holder must be adjusted 70 2,9 - 3,1 mm.

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

## B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point ④				Idle speed regulation Setting point ⑤				Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
-	-	-	-	9,6 4,0 1000	900-905 934-948 0-1,0	-	-	-	-	-	-

Torque-control travel on flyweight assembly dimension a =  mm      Speed regulation: At  $900-905 \text{ min}^{-1}$       1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm <sup>3</sup> /-1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /-1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes / mm Control rod travel 7
850	162,0-164,0 (159,0-167,0)	-	-	-	100	240,0-290,0 = 20,0-21,0 mm RW
			High idle speed: dispersion 4,0 (7,0)			

Checking values in brackets



S U P P L E M E N T A R Y   I N F O R M A T I O N

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-I-400/117
- Test specifications approved by Scania on 19.9.1984
- Start of fuel delivery-engine: 18° before TDC
- Firing sequence, engine : 1-5-3-6-2-4

# Test Specifications Fuel Injection Pumps ② and Governors

PE 8 P 120 A 320 LS 7801 RQ 300/900 PA 762-2  
 Komb.-Nr. 0 402 648 819  
 1 - 8 - 7 - 2 - 6 - 3 - 5 - 4 je 45° + 0,5° (+ 0,75°)  
 Values only apply to test nozzle-and-holder assembly  
 1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes -  
 company Daimler-Benz  
 engine OM 442 LA

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke <sup>5,2-5,3</sup>  
 (5,15-5,35) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
900	13,0+0,1	19,2-19,5	0,5 (0,9)			
300	5,9-6,1	1,2 - 2,0	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

## B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation ④				Idle speed regulation ⑤				Torque control ③	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	19,2-20,8	600	20,0	12,1 4,0 1150	940-955 1020-1050 0-1,5	300	5,9	100 300 365	min. 7,6 5,9-6,1 -405= 2,0	900 600 850	12,7-12,9 14,1-14,2 13,1-13,3

Torque-control travel on flyweight assembly dimension a = 1,2 mm Speed regulation At 940-955 min<sup>-1</sup> 1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm <sup>3</sup> /-1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /-1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes / mm Control rod travel 7
LDA 900	0,75 bar 192,0-195,0 (189,0-198,0)	-	LDA 600	0,75 bar 209,0-211,0 (206,0-214,0)	100	175,0 - 190,0 (171,0 - 194,0)
			LDA 500	0 bar 153,0-155,0 (150,0-158,0)		

Checking values in brackets

# D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
 increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure - bar	Gauge pressure - bar	mm (1)
PE 8 P .. LS 7801 + RQ .. PA 762-2	0		11,2 - 11,4
		0,30	11,7 - 11,8
		0,45	13,3 - 13,5

Notes

(1) when n

rev/min and  
gauge pressure

bar ( - maximum full load control rod travel)

# Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 CUM 3,9 a 2  
2. Edition

VE 4/12 F 1150 R 123-2 Overflow temperature 45° C  
0 460 424 008  
DHK: 1 688 901 016/207 + 3 bar

supersedes 4,85  
company: Cummins  
engine: 4 BT-390  
72 kW / 2300

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,3 mm ± 0,02 (0,04)

see VDT-W-460/..

Testoil-ISO 4113

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm <sup>2</sup> )	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	900	2,3 - 2,7 mm		
1.2 Supply-pump pressure	900	4,8 - 5,4 bar (kgf/cm <sup>2</sup> )		
1.3 Full-load delivery with charge-air pressure	-	- cm <sup>3</sup> /1000 strokes		
Full-load delivery without charge-air pressure	900	86,5 - 87,5 cm <sup>3</sup> /1000 strokes		4,0 (4,5)
1.4 Idle regulation	375	24,5 - 30,5 cm <sup>3</sup> /1000 strokes		3,5 (4,5)
1.5 Full-speed regulation	1230	20,0 - 28,0 cm <sup>3</sup> /1000 strokes		
1.6 Start	100	min. 97,0 cm <sup>3</sup> /1000 strokes		
1.7 Load-dependent port-closing				

## 2. Test Specifications

checking values in brackets ( )

2.1 Timing device	n = rev/min mm	750 1,3-2,1 (1,0-2,4)	900 (1,8-3,2)	1100 3,2-4,0 (2,9-4,3)
2.2 Supply pump	n = rev/min bar (kgf/cm <sup>2</sup> )	400 2,3-2,9	750 4,2-4,8	1100 5,6-6,2
Overflow delivery	n = rev/min cm <sup>3</sup> /10 s	400 55-138 (40-153)		1150 55-138 (40-153)

## 2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes	Charge-air press. bar (kgf/cm <sup>2</sup> )
End stop	1290	max. 2,0	
	1230	(19,0-29,0)	
	1150	81,5-84,5 (80,0-86,0)	
	900	(84,0-90,0)	
	750	86,0-90,0 (85,0-91,0)	
	400	85,5-89,5 (83,7-91,3)	
switch-off			
Idle stop	450	max. 2,0	
	375	(22,5-32,5)	
	300	49,5-55,5 (47,5-57,5)	
	130	min. 97,0	
	200	max. 85,0	
2.4 Solenoid	cut-in voltage	min. 10 Volt	rated voltage 12 V.

## 3. Dimensions

for assembly  
and adjustment  
mm

Designation	mm
K	
KF	5,1-5,4
MS	1,4-1,6
SVS	4,2
XK	20,2-22,2
XL	13,4-16,8

### Observations

Shutoff check ELAB at  
375 min<sup>-1</sup>

# Test Specifications Distributor-type Fuel-injection Pumps

En

VE 4/9 F 2300 R 162 Overflow temperature 45° C  
 0 460 494 153  
 DHK 1 688 901 022/130 bar  
 Fuel injection test tubing 6x2x450 mm/1 680 750 073

supersedes 3.85  
 company: Peugeot  
 engine: XUD 9

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting mm

see VDT-W-460/

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm <sup>2</sup> )	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	1250	3,2-3,6 mm		
1.2 Supply pump pressure	1250	3,9-4,5 bar (kgf/cm <sup>2</sup> )		
1.3 Full-load delivery with charge-air pressure	-	- cm <sup>3</sup> /1000 strokes		
Full-load delivery without charge-air pressure	1250	29,5-30,5 cm <sup>3</sup> /1000 strokes		2,5 (3,0)
1.4 Idle regulation	A 550	2,5-3,5 cm <sup>3</sup> /1000 strokes		B 2,0 (3,0)
1.5 Full-speed regulation	2400	20,0-26,0 cm <sup>3</sup> /1000 strokes		
1.6 Start	100	min. 44,0 cm <sup>3</sup> /1000 strokes		
1.7 Load-dependent port-closing	1250	-		

## 2. Test Specifications checking values in brackets ( )

2.1 Timing device	n = rev/min mm	700 0,2-1,0 (0-1,3)	1250 (2,7-4,1)	2000 7,5-8,3 (7,2-8,6)
2.2 Supply pump	n = rev/min bar (kgf/cm <sup>2</sup> )	700 2,3-2,9	2000 5,9-6,5	
Overflow delivery	n = rev/min cm <sup>3</sup> /10 s	700 42-83(27-98)	2250 55-138 (40-153)	

2.3 Fuel deliveries	Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes	Charge-air press. bar (kgf/cm <sup>2</sup> )
End stop		2650	max. 7,0	
		2500	11,5-17,5 (10,5-18,5)	
		2400	(19,0-27,0)	
		2250	30,0-32,0 (28,8-33,2)	
		2000	30,5-32,5 (29,3-33,7)	
		1250	(27,8-32,2)	
		700	29,5-32,5 (28,0-34,0)	
switch-off		2300	0	
Idle stop	A	550	2,5-3,5	
	B	375	8,5-10,5 (5,5-13,5)	
	C	470	8,0-10,5 (5,5-13,0)	
End stop		200	min. 40,0	
		300	max. 35,0	

3. Dimensions	Designation	for assembly and adjustment mm
	K	3,2-3,4
	KF	5,7-6,0
	MS	1,3-1,5
	SVS	3,0
	X <sub>K</sub>	18,9-20,9
	X <sub>L</sub>	11,8-15,2

Observations  
 \* Residual delivery setting idle setting (LFG) as per VDT-I-460/135

2.4 Solenoid	cut-in voltage	min. 10 V
	rated voltage	12 V.

# Test Specifications Distributor-type Fuel-injection Pumps

En

Testoil-ISO 4113

VE 3/11 F 1200 L 163-3 Overflow temperature 45° C

0 460 413 005

Fuel injection test tubing 1 688 901 020/172 +3 bar

supersedes  
company: Fiat  
engine: 8035-05-265

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,2 mm  $\pm 0,02(0,04)$

see VDT-W-460/..

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm <sup>2</sup> )	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	800	3,2-3,6 mm		
1.2 Supply-pump pressure	800	4,2-4,8 bar (kgf/cm <sup>2</sup> )		
1.3 Full-load delivery with charge-air pressure	-		cm <sup>3</sup> /1000 strokes	
Full-load delivery without charge-air pressure	800	62,5-63,5 cm <sup>3</sup> /1000 strokes		3,5
1.4 Idle regulation	350	13,0-17,0 cm <sup>3</sup> /1000 strokes		3,5
1.5 Full-speed regulation	1350	15,0-21,0 cm <sup>3</sup> /1000 strokes		
1.6 Start	100	min. 90 cm <sup>3</sup> /1000 strokes		
1.7 Load-dependent port-closing	-			

## 2. Test Specifications checking values in brackets ( )

2.1 Timing device	n = rev/min	500	800	1100
	mm	0,8-1,4 (0,4-1,8)	(2,7-4,1)	5,7-6,5 (5,4-6,8)
2.2 Supply pump	n = rev/min	500	1100	1200
	bar (kgf/cm <sup>2</sup> )	2,9-3,5	5,5-6,1	6,0-6,6
Overflow delivery	n = rev/min	500	1200	
	cm <sup>3</sup> /10 s	41-83 (26-98)	55-138 (40-153)	

2.3 Fuel deliveries	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes	Charge-air press bar (kgf/cm <sup>2</sup> )
Speed control lever	1400	max. 2,0	
	1350	(13,5-22,5)	
	1300	37,5-44,5 (36,5-44,5)	
	1200	56,0-59,0 (54,8-60,2)	
	800	(60,3-65,7)	
	500	59,5-62,5 (57,6-64,4)	
switch-off	1400	0	
Idle stop	420	max. 2,0	
	380	3,0-9,0 (1,5-10,5)	
	350	(10,5-19,5)	
	End stop	150	mon. 100
	250	max. 65	
2.4 Solenoid	cut-in voltage min. 10,0 V rated voltage 12 V.		

## 3. Dimensions

for assembly and adjustment mm

Designation	mm
K	-
KF	5,2-5,5
MS	1,5-1,7
SVS	4,0

Observations

# Test Specifications Distributor-type Fuel-injection Pumps

Testoil-ISO 4113

VE 4/8 F 2300 R 171 Overflow temperature 45° C

0 460 484 010  
DHK 1 688 901 022/130 bar  
Fuel injection test tubing 6x2x450 mm/1 680 750 073

superseded by Peugeot  
company: XUD 7  
engine: 10.84

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

see VDT-W-460/

Pre-stroke setting mm

1. Settings	Rot. speed rev/min	Settings	Charge-air press bar (kgf/cm <sup>2</sup> )	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	1250	3,8- 4,2 mm		
1.2 Supply-pump pressure	1250	4,3- 4,9 bar (kgf/cm <sup>2</sup> )		
1.3 Full-load delivery with charge-air pressure	-	- cm <sup>3</sup> /1000 strokes		
Full-load delivery without charge-air pressure	1250	29,5-30,5 cm <sup>3</sup> /1000 strokes		2,5(3,0)
1.4 Idle regulation *	A 550	3,5- 4,5 cm <sup>3</sup> /1000 strokes		B 2,0(3,0)
1.5 Full-speed regulation	2400	19,0-25,0 cm <sup>3</sup> /1000 strokes		
1.6 Start	100	min. 42,0 cm <sup>3</sup> /1000 strokes		
1.7 Load-dependent port-closing	1250			

## 2. Test Specifications checking values in brackets ( )

2.1 Timing device	n = rev/min mm	700 0,2-1,0(0-1,3)	1250 (2,9-4,3)	2000 7,5-8,3(7,2-8,6)
2.2 Supply pump	n = rev/min bar (kgf/cm <sup>2</sup> )	700 2,8-3,4		2000 6,4-7,0
Overflow delivery	n = rev/min cm <sup>3</sup> /10 s	700 42-83(27-98)		2250 55-138(40-153)

2.3 Fuel deliveries	Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes	Charge-air press bar (kgf/cm <sup>2</sup> )
End stop		2650	max. 7,0	
		2500	11,5-17,5 (10,5-18,5)	
		2400	(18,0-26,0)	
		2250	28,0-30,0 (26,7-31,3)	
		2000	29,0-31,0 (27,7-32,3)	
		1250	(27,7-32,3)	
		700	29,5-32,5 (28,0-34,0)	
switch-off		2300	0	
Idle stop	A	550	3,5 - 4,5	
	B	350	8,0 -12,0 (6,0-14,0)	
	C	470	8,0 -12,0 (6,0-14,0)	
End stop		200	min. 44,0	
		300	max. 34,0	
2.4 Solenoid		cut-in voltage	min 10 V	
			rated voltage 12 V.	

## 3. Dimensions for assembly and adjustment

Designation	mm
K	3,2-3,4
KF	5,2-5,5
MS	1,3-1,5
svs	max. 3,0
XK	18,9-20,9
X <sub>L</sub>	12,2-15,6

Observations  
\* Residual delivery setting idle setting (LFG) as per VDT-I-460/135

⑥

# Test Specifications Distributor-type Fuel-injection Pumps

**46**  
WPP 001/4 PEU 2,1 f  
2. Edition

En

VE 4/9 F 2250 R 174 Overflow temperature 45° C  
0 460 494 154  
DHK: 1 6 88 901 022 / 130+ 3 bar  
Fuel injection test tubing 6 x 2 x 450 mm

1.85  
supersedes PSA-Mahindra  
company: XD 4/90  
engine:

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting mm

see VDT-W-460/

1. Settings	Rot. speed rev/min	Settings	Charge-air press bar (kgf/cm <sup>2</sup> )	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	1500	3,8-4,2 mm		
1.2 Supply-pump pressure	1500	5,5-6,1 bar (kgf/cm <sup>2</sup> )		
1.3 Full-load delivery with charge-air pressure	-	cm <sup>3</sup> /1000 strokes		
Full-load delivery without charge-air pressure	1500	31,0-32,0 cm <sup>3</sup> /1000 strokes		2,5(3,0)
1.4 Idle regulation	350	7,0-11,0 cm <sup>3</sup> /1000 strokes		2,0(3,0)
1.5 Full-speed regulation	2400	11,0-17,0 cm <sup>3</sup> /1000 strokes		
1.6 Start	100	min. 50 cm <sup>3</sup> /1000 strokes		
1.7 Load-dependent port-closing	-			

## 2. Test Specifications checking values in brackets ( )

2.1 Timing device	n = rev/min	1000 1,6-2,4 (1,3-2,7)	1500 (3,3-4,7)	2200 6,4-7,2 (6,1-7,5)
2.2 Supply pump	n = rev/min bar (kgf/cm <sup>2</sup> )	400 2,0-2,6	2200 7,4 8,0	
Overflow delivery	n = rev/min cm <sup>3</sup> /10 s		2250 55-138 (40-153)	

## 2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes	Charge-air press. bar (kgf/cm <sup>2</sup> )
End stop	2500	max. 4,0	
	2400	(10,0-18,0)	
	2350	21,0-27,0 (20,0-28,0)	
	2200	34,0-37,0 (32,8-38,2)	
	2000	33,5-36,5 (32,3-37,7)	
	1500	(28,8-34,2)	
	1000	29,7-32,7 (28,2-34,2)	
switch-off	500	30,8-33,8 (29,5-35,3)	
Idle stop	350	(5,0-13,0)	
	400	max. 4,0	
	550	max. 1,0	
End stop	350	min. 40	
	450	min. 44	
2.4 Solenoid	cut-in voltage:	min. 10 v	
	rated voltage:	12 v	

## 3. Dimensions

Designation	for assembly and adjustment mm
K	3,2-3,4
KF	5,7-6,0
MS	1,2-1,4
SVS	2,5
XK	20,2-22,2
XL	12,0-15,4

Observations

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9.85

Tested 4/90



# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 STE 2,3 b 1

1. Edition

En

PES 3 A 75 D 310 RS 1215

RSV 250-900 A7B 719 DL

supersedes -  
company Steyr  
engine WD 308 S

TESTING 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $2,45-2,55$  mm (from BDC)  
 $(2,40-2,60)$

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9,0±0,1	3,9-4,2	0,4			
200	9,0	1,8-2,4				

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control			
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11		
ca. 60	950	16,0	without auxiliary spring			ca. 25	250	6,0	880	0		
	950	10,0							100	19,0-21,0	850	0,1-0,3
	980	5,2							250	5,7-6,3	350	0,2-0,4
2a	950	8,4-11,0	with auxiliary spring				400	1,3-3,7				
	1000	3,1-5,1							550	0-1,0		
	1070	0,3-1,0										

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery idle		5 Idle stop	
Test oil temp 40°C (104°F)	rev/min	cm <sup>3</sup> /1000 strokes	Note changed to rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
	900	61,0-63,0	930-940			100	16,0-16,6 mm RW		

Checking values in brackets

\* 1 mm less control rod travel than col 2

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E1

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 STE 3,1 b

1. Edition

En

PES 4 A 75 D 410 RS 1215  
Komb.-Nr. 0 400 474 152

RSV 250-900 A7B 719 DL

supersedes  
company Steyr  
engine WD 408 S

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $2,45-2,55$   
( $2,40-2,60$ ) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque control valve) mm 6
900	11,5+0,1	5,9-6,0	0,25(0,4)			
250	5,4-5,6	1,0-1,6	0,2(0,35)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

① Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			④ Control lever deflection in degrees 7	Lower rated speed		③ Torque control	
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 25	250	5,5	900	11,5-11,6
ca. 60 ②a	10,5	930-940					100	min.19,5	500	11,7-11,9
	4,0	965-995					250	5,9-6,1	750	11,7-11,9
	1100	0,3-1,7					405-465=2,0			

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp 40°C (104°F)		⑥ Rotational speed limit Note changed to ) rev/min 3	③a Fuel delivery characteristics		Starting fuel delivery ⑤		④a Idle stop	
rev/min 1	cm <sup>3</sup> /1000 strokes 2		rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
900	58,5-59,5 (57,0-61,0)	-	-	-	100	84,0-94,0 (81,0-97,0)		

Checking values in brackets

\* 1 mm less control rod travel than col 2

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E2

E2

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MWM 5,9 a 2

En 1. Edition

PES 6 A 80 D 320 RS 1271  
Komb.-Nr. 9 400 085 238

RSV 350-1400 A 2 B 2196 R

supersedes -  
company MWM  
D 229-6  
engine 127,0 kW

Test ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\frac{2,2-2,3}{(2,15-2,35)}$  mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre tensioning (torque-control valve) mm 6
1380	9,5+0,1	5,3 - 5,4	0,25(0,4)			
350	6,9-7,1	0,8 - 1,1	0,2 (0,35)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 21	350	6,5	1380	9,5- 9,6
	X = 5,5						100	min. 19,0	500	10,9-11,0
							350	6,9-7,1	800	10,7-10,9
ca. 54	8,5	1420-1430					640 - 700	=2,0	1100	10,0-10,3
②a	4,0	1470-1500					850	max. 1,0		
	1650	0,3-1,7								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

②b Full load stop Test oil temp 40°C (104°F)		⑥ Rotational speed limit Note changed to ) rev/min		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤ ④a Idle stop	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	3	4	rev/min 5	cm <sup>3</sup> /1000 strokes	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
1380	52,5 - 53,5 (51,0 - 55,0)	1420-1430*	800	54,0 - 56,0 (52,0 - 58,0)	100	19,0-21,0 mm RW	-	-	
500	52,0 - 54,0 (50,0 - 56,0)		1100	54,5 - 56,5 (52,5 - 58,5)					

Checking values in brackets

\* 1 mm less control rod travel than col 2

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# Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 MB 8,7 1

3. Edition

En

**Testoil-ISO 4113**

PE6A90D410RS2124

RD 450/1250 AB 812

supersedes 1.83

company Daimler-Benz

engine OM 360

141 kW (192 PS)

Komb.-Nr. 0 400 646 229

1 - 5 - 3 - 6 - 2 - 4  
0 - 60-120-180-240-300° ±0,5° (±0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke ( 2,10-2,30 )  
2,15-2,25 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	10,2+0,1	8,6 - 8,7	0,3(0,45)			
450	5,9-6,1	1,2-1,8	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Checking of sider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Control rod travel mm 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
700	15,5-16,4	700	16,0	9,2	1295-1310	450	6,0	100	min. 7,5	-	-
				4,0	1345-1375			450	5,9-6,1		
								600	0 - 1,0		
								500	540=2,0		

Torque-control travel on flyweight assembly dimension a = - mm Speed regulation At 1295-1310 min<sup>-1</sup> 1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes / mm 7
1250	86,0 - 87,0 (84,0 - 89,0)	800	800	80,0 - 83,0 (78,0 - 85,0)	100	115,0-125,0 (112,0-128,0) = min. 16,0 mm RW

Checking values in brackets

# Test Specifications Fuel Injection Pumps ② and Governors

En

PE 6 A 90 D 410 RS 2124 X RQ 300/1275 AB 658 DL  
Komb.-Nr. 0 400 646 151

supersedes 11.84  
company Daimler-Benz  
engine OM 360  
125 kW (170 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\frac{2,15-2,25}{(2,1 - 2,3)}$  mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	9,3-9,4	7,7 - 7,8	0,3(0,45)			
300	6,1-6,3	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point ①		Test specifications ④		Setting point		Test specifications ⑤		Control rod ③	
		rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
700	15,6-16,4	700	16,0	8,3 4,0	1295-1310 1345-1375	300	5,0	100 300 350-390 = 2,0 475	min. 6,5 4,9-5,1 max. 1,0	1250 500 850 1040	9,3-9,4 10,1-10,2 9,8-10,0 9,4-9,7

Torque-control travel on flyweight assembly dimension a = 0,4 mm      Speed regulation  $\Delta n$  1295-1310 min<sup>-1</sup>      1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm <sup>3</sup> /-1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /-1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes / mm Control rod travel 7
1250	77,0-78,0 (75,0-80,0)	450	500 800	69,0-72,0 (67,0-74,0) 77,0-80,0 (75,0-82,0)	100	min. 16,0 mm RW

Checking values in brackets

# Test Specifications Fuel Injection Pumps ② and Governors

PES 6 A 95 D 420 LS2328 RQ 200/1100 AB782DR

supersedes 3.76

company: MAN

engine: D 2356 HMYU\*  
(220 PS)\*

All D 2356 HMXU engines must, when repairing, be changed to D 2356 HMYU in accordance with test specifications below.

Komb.-Nr. 0 400 846 239

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke 2,0 + 0,1 mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	7,5 - 8,0	0,5			
	6	3,2 - 4,2				
200	6	0,5 - 1,4				

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Test specifications Control rod travel mm 5	rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	15,7-16,3	600	16,0	1120 1150 1180 1240	15,6-16,0 9,0-14,2 0 - 10 0	550	0	100 200 300 450	6,6-8,1 5,4-7,3 3,3-5,3 0	-	-

Torque-control travel on flyweight assembly dimension a =  mm

Speed regulation: At

1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm <sup>3</sup> /-1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /-1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes / mm Control rod travel 7
1100	125,5 - 127,5 (123,5-129,5)	500	800	125,0 - 128,0 (123,0-130,0)	100	14,0-14,4 mm RW
			500	max. 122,5 (max. 124,5)	200	6,5 mm

Checking values in brackets

3.85

# Test Specifications Fuel Injection Pumps ① and Governors

PES 5 A 95 D 410 RS 2417 RQV 300-1250 AB 1211 L  
Komb.-Nr. 0 400 845 081

supersedes -  
company: KHD  
engine F 5 L 413 FR  
88 kW/2500 min<sup>-1</sup>

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\overset{1,9 - 2,0}{(1,85-2,05)}$  mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	10,0+0,1	9,9-10,1	0,35(0,6)			
300	6,4-6,6	1,0-1,6	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel					
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	①a	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	④	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	③	rev/min 10	mm 11	①
max.	1280	15,2-17,8	-	-	-	-	-	ca. 18°	300	5,7-5,9	-	250	1,0-1,2	-
ca. 54	9,0 4,5 1500	1290-1300 1350-1380 0-1,0	-	-	-	-	-	365-480	-	-	-	500	3,2-3,5	-
												1000	6,2-6,4	-
												1250	8,3	-

Torque control travel a = 0,20 mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5b	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
1250	99,0-101,0 (97,0-103,0)	1290-1300*	600	91,5-94,5 (89,0-97,0)	100	120,0-130,0 =14,2-14,6 mm RW	1250 600 715 765	10,0+0 1 10,2+0 1 10,1-0 2 10,1+0 2

Checking values in brackets

\* 1 mm less control rod travel than col. 2

②

# Test Specifications Fuel Injection Pumps and Governors

**40**

WPP 001/4 OMB 4,4 n

2. Edition

En

PES 4 A 90 D 410 RS 2442 RQ 275/1300 AB994L  
Komb.-Nr. 0 400 844 070  
Control switch must light up at n = 1480-1490

supersedes 10.77  
company OM-Brescia  
engine C03/130  
81 kW

**Testoil-ISO 4113**

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke <sup>2,15-2,25</sup>  
(2,10-2,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1300	11,7+0,1	8,1 - 8,2	0,2(0,35)			
275	8,3-8,5	1,5 - 2,1	0,2(0,3)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Checking of slider		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Test specifications rev/min 5	Control rod travel mm 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
900	15,6-16,4	900	16,0	10,7 4,0 1600	1345-1360 1470-1500 0 - 1,0	275	8,5	100 275 660-760 = 2,0	min. 10,2 8,6-8,8	1300 650	11,7-11,8 12,2-12,4

Torque control travel on flyweight assembly dimension a - mm      Speed regulation  $1345-1360 \text{ min}^{-1}$       1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104 F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery	
rev/min 1	cm <sup>3</sup> /-1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /-1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7
1300	80,5 - 81,5 (78,5 - 83,5)	-	650	79,5 - 82,5 (77,5 - 84,5)	100	120,0-133,0 (117,0-133,0) = 16,9-17,5 mm R <sub>0</sub>

Checking values in brackets

4.85

**BOSCH**

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# Test Specifications Fuel Injection Pumps ① and Governors

PE 8 A 95 D 410 LS 2451 RQV 300-1150 AB 1045-1 L  
 1 - 8 - 7 - 2 - 6 - 5 - 4 - 3 je 45° ± 0,5° (± 0,75°)  
 Komb.-Nr. 0 400 648 143

supersedes-  
 company TAM  
 engine F 8 L 413 F  
 173 kW/2300 min<sup>-1</sup>

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke <sup>2,0-2,1</sup>  
 (1,95-2,15) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1150	9,3-9,4	8,6-8,8	0,3(0,6)			
300	5,9-6,1	1,4-2,4	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

Test bench 4113

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1200	15,2-17,8	-	-	-	ca. 16	100 300	min.7,5 5,9-6,1	200 600 850 1200	0,7-0,9 3,9-4,1 6,9-7,1 8,4
ca. 46	8,3 4,0 1350	1190-1200 1225-1255 0-1,0				330-445				

Torque control travel a = 0,40 mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1150	86,0-88,0 (84,0-90,0)	1190-1200*	1000  700	86,5-89,5 (84,5-91,5)  86,5-89,5 (84,5-91,5)	100	116,5-126,5 (113,5-129,5)	1150 500 840 1000	9,3+0,1 9,7+0,1 9,6+0,2 9,4+0,2

Checking values in brackets

\* 1 mm less control rod travel than col 2

# Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 MAN 11,1 g 1

2. Edition

En

Testoil-ISO 4113

PES 6 A 95 D 410 LS2485Z	RQ 250/1100 AB839DL	(1)
LS2485Y	RQ 250/1100 AB839DL	(2)
LS2485Y	RQ 250/1100 AB965DL	(3)

supersedes 8.77  
company: MAN  
engine D 2566 ..  
MSFV (1- 220 PS)  
MFO/MFOR (2- 220 PS)  
MFO/MFOR (3- 200 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\frac{1,50-1,60}{(1,45-1,65)}$  mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery Z, Y + 839DL cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery Y + 965DL cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,2+0,1	11,2 - 11,4	0,3(0,6)	10,0 (+0,1)	10,1 - 10,3	
250	5,9-6,1	1,1 - 1,7	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Z + 839DL (1)

Checking of slider PRG check rev/min 1		Control rod travel mm 2		Setting point rev/min 3		Control rod travel mm 4		Test specifications rev/min 5		rev/min 6		Setting point rev/min 7		Control rod travel mm 8		Test specifications rev/min 9		Control rod travel mm 10		rev/min 11		Control rod travel mm 12	
600	15,6-16,4	600	16,0	10,2	1145-1160	250	6,0	100	min. 7,5	1100	11,2-11,3												
				4,0	1175-1205			250	5,9-6,1														
				1300	0 - 1,0			500	340-400 = 2,0 max. 1,0														

Torque-control travel on flyweight assembly dimension a = 0,2 mm      Speed regulation: At 1145-1160 min<sup>-1</sup>      1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm <sup>3</sup> /-1000 strokes 2	rev/min 3	3a	rev/min 4	cm <sup>3</sup> /-1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes/mm 7
1100	112,0 - 114,0 (110,0 - 116,0)	-		800	114,5 - 117,5 (112,5 - 119,5)	100	114,0-120,0 (111,0-123,0)
				500	111,0 - 114,0 (109,0 - 116,0)	250	6,0

Checking values in brackets

4.85

E10

E10

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### B. Governor Settings

Y + 839DL (2)

②

Checking of slider		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min	Control rod travel mm	Setting point		Test specifications		Setting point		Test specifications		rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
600	15,6-16,4	600	16,0	10,2	1145-1160	250	6,0	100	min. 7,5	1100	11,2-11,3
1100	Breakway			4,0	1175-1205			250	5,9-6,1	800	11,5-11,6
1300	0 - 1							340-500	400 = 2,0 0 - 1		

Torque-control travel on flyweight assembly dimension a = 0,2 mm      Speed regulation: At      1 mm less control rod travel

### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery	
rev/min	cm <sup>3</sup> /-1000 strokes	rev/min	rev/min	cm <sup>3</sup> /-1000 strokes	rev/min	cm <sup>3</sup> /100 strokes 7 mm RW
1	2	3	4	5	6	7
1100	112,5 - 114,5 (110,5 - 116,5)		800	114,5 - 117,5 (112,5 - 119,5)	100	13,0-13,6
			500	110,5 - 113,5 (108,5 - 115,5)	250	6,0

Checking values in brackets

### B. Governor Settings

Y + 965DL (3)

Checking of slider		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min	Control rod travel mm	Setting point		Test specifications		Setting point		Test specifications		rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
600	15,6-16,4	600	16,0	9,0	1145-1160	250	6,0	100	min. 7,9	-	-
1100	Breakway			4,0	1180-1210			250	6,3-6,5		
1300	0 - 1							360-420	= 2,0		
								500	0 - 1		

Torque-control travel on flyweight assembly dimension a = 0 mm      Speed regulation: At      1 mm less control rod travel

### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery	
rev/min	cm <sup>3</sup> /-1000 strokes	rev/min	rev/min	cm <sup>3</sup> /-1000 strokes	rev/min	cm <sup>3</sup> /100 strokes 7 mm RW
1	2	3	4	5	6	7
1100	99,5 - 101,5 (97,5 - 103,5)		500	86,5 - 91,5 (84,5 - 93,5)	100	13,6-14,2
					250	6,0

Checking values in brackets

En

E11

# Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 MAN 9,2 d  
4. Edition

En

PES 5 A 95 D 410 LS2488 RQ 250/1100 AB839D (1)  
LS2488Y RQ 250/1100 AB839D (2)

supersedes 5.84  
company: M A N  
D 2565 M/MF  
engine: (1) 141 kW/2200 min<sup>-1</sup>  
(2) 123,5 kW/2200 min<sup>-1</sup>

Komb.-Nr. 0 400 845 928 (1) MAN-Nr. 7724  
0 400 845 036 (2) MAN-Nr. 7844

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\begin{matrix} 1,50-1,60 \\ (1,45-1,65) \end{matrix}$  mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	11,2+0,1	11,8 - 12,0	0,3(0,6)	9,9+0,1	10,0 - 10,3	
250	5,9-6,1	1,4 - 1,9	0,3 (0,5)	5,9-6,1	1,1 - 1,7	

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

## B. Governor Settings

(1)

Checking of slider PRG check ①		Full-load speed regulation Setting point ①				Idle speed regulation Setting point ①				Torque control ③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	12
600	15,6-16,4	600	16,0	1100	15,1-15,4	540	0	100	6,9-8,1	900	15,8-16,0
				1150	9,0-14,0			200	5,6-7,6	1030	15,3-15,5
				1200	0 - 7,2			300	3,3-5,5		
				1250	0 - 1,5			500	0 - 1		

Torque-control travel on flyweight assembly dimension a =  $\frac{0,2}{1145 - 1160} =$  mm Speed regulation At = 1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min	cm <sup>3</sup> /-1000 strokes	rev/min	rev/min	cm <sup>3</sup> /-1000 strokes	rev/min	Control rod travel cm <sup>3</sup> /1000 strokes / mm
1	2	3	4	5	6	7
1100	117,5 - 119,5 (115,5 - 121,5)		800	116,5 - 120,5 (114,5 - 122,5)	100	116,5 - 126,5 = 13,7-14,3 mm RW
			500	114,5 - 108,5 (112,5 - 120,5)		

Checking values in brackets

### B. Governor Settings

RQ.. 839DL + 2488Y

Checking of slider		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point		Test specifications		Setting point		Test specifications		rev/min 11	Control rod travel mm 12
		rev/min 3	Control rod travel mm 4	rev/min 5	Control rod travel mm 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10		
600	15,6-16,4	600	16,0	1100 1150 1200 1250	15,1-15,4 9,0-14,0 0 - 7,2 0 - 1,5	540	0	100 200 300 500	6,9-8,1 5,6-7,6 3,3-5,5 0 - 1	900 1030	15,8-16,0 15,3-15,5

Torque-control travel on flyweight assembly dimension a =

0,2 mm

Speed regulation: At 1145 - 1160 =

1 mm less control rod travel

### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop rev/min 3	Fuel delivery characteristics		Starting fuel delivery	
rev/min 1	cm <sup>3</sup> /-1000 strokes 2		rev/min 4	cm <sup>3</sup> /-1000 strokes 5	rev/min 6	cm <sup>3</sup> /100 strokes 7
1100	99,0 - 101,0 (97,0 - 103,0)		800 500	100,5 - 104,5 ( 98,5 - 106,5) 95,0 - 99,0 ( 93,0 - 101,0)	100 250	119,0 - 124,0 6,0 mm RW

Checking values in brackets

**Testoil-ISO 4113**

### B. Governor Settings

Checking of slider		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point		Test specifications		Setting point		Test specifications		rev/min 11	Control rod travel mm 12
		rev/min 3	Control rod travel mm 4	rev/min 5	Control rod travel mm 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10		

Torque-control travel on flyweight assembly dimension a =

mm

Speed regulation At

1 mm less control rod travel

### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop rev/min 3	Fuel delivery characteristics		Starting fuel delivery	
rev/min 1	cm <sup>3</sup> /-1000 strokes 2		rev/min 4	cm <sup>3</sup> /-1000 strokes 5	rev/min 6	cm <sup>3</sup> /100 strokes 7

Checking values in brackets

En

2

E13

E43

# Test Specifications Fuel Injection Pumps ② and Governors

PES 6 A 95 D 410 LS 2489  
Komb.-Nr. 0 400 846 377

RQ 250/1100 AB 965 DL

supersedes 2.76  
company: MAN  
engine D 2566 MXUM/UH  
213 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke <sup>1,5-1,6</sup> (1,45-1,65) mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> / 100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	12,2+0,1	12,7-12,9	0,3 (0,6)			
250	6,0-6,2	0,9-1,3	0,3 (0,5)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

## B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point ①				Idle speed regulation Setting point ⑤				Torque control ③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	12
600	15,6-16,4	600	16,0	11,2 4,0	1145-1160 1185-1215	250	6,0	100 250 330-370 = 2,0	min. 7,5 5,9-6,1	1100 500	12,2-12,3 12,2-12,4

Torque-control travel on flyweight assembly dimension on a = 0 mm Speed regulation: At 1145-1160 min<sup>-1</sup> 1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery idle speed ⑥	
rev/min	cm <sup>3</sup> /-1000 strokes	rev/min	rev/min	cm <sup>3</sup> /-1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes / mm Control rod travel
1	2	3	4	5	6	7
1100	126,5-128,5 (124,5-130,5)	-	500	max. 121,5 (max. 123,5)	100	116,5-126,5 (113,5-129,5)

Checking values in brackets

# Test Specifications Fuel Injection Pumps ② and Governors

En

PES 6 A 95 D 410 LS 2489 Z RQ 250/1100 AB 965 D

supersedes...

company MAN  
engine D 2566 MUH/M  
155 kW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\frac{1,5-1,6}{(1,45-1,65)}$  mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	10,1+0,1	10,3-10,5	0,3 (0,6)			
250	5,9-6,1	1,2-1,8	0,3 (0,5)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation ④				Idle speed regulation ⑤				Torque control ③	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	15,6-16,4	600	16,0	1140	15,6-16,0	560	0	150	7,0-8,1	-	-
				1180	6,6-12,8			250	5,3-7,5		
				1220	0-7,0			350	2,4-4,6		
				1260	0			460	0		

Torque-control travel on flyweight assembly dimension a = 0 mm Speed regulation: At 1145-1160 min<sup>-1</sup> 1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever ② Test oil temp. 40°C (104°F)		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery idle speed ⑥	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes/mm 7
1100	101,5-103,5 (99,5-105,5)	-	500	88,5-92,5 (86,5-94,5)	100	111,0-119,0
					250	6,0 mm RW

Checking values in brackets

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 4,1 c 6

1. Edition

En

PES 4 A 80 D 410 RS 2523  
Komb.-Nr. 9 400 093 229

RSV 325-1075 A1B 1111 DL

supersedes  
company Deutz Argentinien  
engine F 4 L 913

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\overset{1,9-2,0}{(1,85-2,05)}$  mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre tensioning (torque-control valve) mm 6
1075	10,2+0,1	6,0-6,1	0,25 (0,4)			
325	6,4-6,6	0,6-0,9	0,2 (0,35)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 32	325	6,0	1075	10,2-10,3
	x = 6,25						100	min. 19,0	500	11,0-11,1
							325	6,4-6,6	750	10,5-10,8
ca. 65	9,2	1115-1125					510-570	= 2,0		
2a	4,0	1160-1190								
	1300	0,3-1,7								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp 40°C (104°F)	Note changed to )	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	3	4	5	6	7	8	9		
1075	1115-1125*	500	60,0-62,0 (58,0-64,0)	100	19,0-21,0 mm RW	-	-		
		750	58,0-60,0 (56,0-62,0)						

Checking values in brackets

\* 1 mm less control rod travel than col 2

12.85

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E16

E16



# Test Specifications Fuel Injection Pumps ② and Governors

En

Testoil-ISO 4113

PE 6 A 95 D 410 RS 2525

RQ 225/1200 AB 1007 L

supersedes 1.85

company: DAF

engine DHR 825

Values apply to fuel-injection test tubing  
1 680 750 015

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $(1,95-2,15)$   
2,00-2,10 mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12,6+0,1	10,8 - 11,0	0,35(0,6)			
225	5,7-5,9	0,7 - 1,2	0,35(0,5)			

Port closing difference between control-rod travel 9 mm and max. 3 - 4° camshaft

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3				Idle speed regulation Setting point rev/min 7				Torque control rev/min 11	
Control rod travel mm 2	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Control rod travel mm 8	Control rod travel mm 9	Control rod travel mm 10	Control rod travel mm 12	Control rod travel mm 12	Control rod travel mm 12	Control rod travel mm 12	
19,2-20,8	20,0	11,6	1230-1245	5,8	100	min. 7,2	1000	12,6-12,7	1200	12,5-12,7	
VH = max. 46°		4,0 1390	1315-1345 0 - 1,0		225	5,7-5,9 340-380 = 2,0 450 max. 1,0					

Torque-control travel on flyweight assembly dimension a =  mm Speed regulation: AI 1230-1245 min<sup>-1</sup> 1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm <sup>3</sup> /-1000 strokes 2	Control rod travel mm 3a	Control rod travel mm 3b	cm <sup>3</sup> /-1000 strokes 5	cm <sup>3</sup> /1000 strokes / mm 7	Control rod travel mm 6	Control rod travel mm 7	Control rod travel mm 6
LDA 1000	0,7 bar		LDA 600	0 bar	100	120,0-130,0 (117,0-133,0) = 19,5-21,0 mm RW	
	109,0 - 110,0 (107,0 - 112,0)			85,5 - 86,5 (83,5 - 88,5)			

Checking values in brackets

# D. Adjustment Test for Manifold Pressure Compensator

DAF 0,5 k

Test at n = 1000 rev/min decreasing pressure - in bar gauge pressure  
 increasing

Pump/governor	Setting	Measurement	Control rod travel	diminution difference
	Gauge pressure - bar	Gauge pressure - bar	mm (1)	
PE 6 A ..RS 2525 + ..AB 1007 L	0,7	0,30	12,6 - 12,7	
		0,26	12,3 - 12,4	
		0	11,7 - 12,0	
			11,5 - 11,6	

**Notes**

(1) when n

rev/min and gauge pressure

bar ( maximum full load control rod travel)

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 8,3 k 7

1. Edition

En

PE 6 A 95 D 410 RS 2525  
Komb.-Nr. 0 400 676 185

RSV 250-1200 A5C 2198-3 L

supersedes  
company DAF  
engine DH 825

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $2,0-2,1$  mm (from BDC) RW =  $7,5-10,5$  mm  
( $1,95-2,15$ )

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1200	10,4+0,1	7,3-7,5	0,35(0,6)			
250	6,0-6,2	0,7-1,1	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3				7	8	9	10	11
loose	800	0,3-0,7	-	-	-	ca. 24	250	5,6	1200	10,4-10,5
	x = 4,3						100	min.19,5	500	11,2-11,3
ca. 58	9,4	1240-1250					250	6,0-6,2	800	11,1-11,2
2a	4,0	1320-1350					655-715	=2,0	940	10,7-11,0
	1500	0,3-1,4								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery idle		5 Idle stop	
Test oil temp 40°C (104°F)	Note changed to 1 rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	3	4	5	6	7	8	9		
1200		800	74,5-77,5 (72,0-80,0)	100	120,0-130,0 (117,0-133,0)	0	-	-	-

Checking values in brackets

\* 1 mm less control rod travel than col 2

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10.85

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 5,1 d 1

1. Edition

En

PES 5 A 80 D 410 RS 2526 RSV 325-1075 A1B 1111 DL  
Komb.-Nr. 9 400 093 228  
1-3-5-4-2- je 72° ± 0,5° (± 0,75°)

supersedes -  
company Deutz Argentinien  
engine F 5 L 913

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\frac{1,9-2,0}{(1,85-2,05)}$  mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1075	9,4-9,5	5,3-5,4	0,25 (0,4)			
325	6,4-6,6	0,6- 0,9	0,2 (0,35)			

Adjust the fuel delivery from each outlet according to the values in

Testoil ISO 4113

## B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control lever deflection in degrees 7	Lower rated speed		3 Torque control	
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 32	325	6,0	1075	9,4-9,5
	x = 6,25						100	min. 19,0	500	11,2-11,3
ca. 65	8,4	1115-1125					325	6,4-6,6	800	10,4-10,7
2a	4,0	1150-1180					510-570	= 2,0		
	1300	0,3-1,7								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note changed to 1 rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
rev/min 1	cm <sup>3</sup> /1000 strokes 2		rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
1075	52,5-53,5 (50,5-55,5)	1115-1125*	500	61,5-63,5 (59,5-65,5) 57,0-59,0 (55,0-61,0)	100	19,0-21,0 mm RW	-	-
			800					

Checking values in brackets

\* 1 mm less control rod travel than col 2

12.85

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E20

E20

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 5,1 e

1. Edition

En

PES 5 A 80 D 410 RS 2526 RS 325/1400 AOB 2212 L

supersedes

company Deutz Argentinien  
engine F 5 L 913

Komb.-Nr. 9 400 085 255

1-3-5-4-2 je  $72^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\overset{1,9-2,0}{(1,85-2,05)}$  mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre tensioning (torque control valve) mm 6
1400	11,5±0,1	6,6-6,7	0,25 (0,4)			
325	8,4-8,6	1,0-1,3	0,2 (0,35)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

① Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed			④ Control lever deflection in degrees 7	Lower rated speed		③ Torque control	
			4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	FH ca.28	325	8,5	1400	11,5-11,6
		X = 2,0					280	8,8-9,6	500	12,2-12,3
							420	5,6-6,4	1100	11,8-12,1
VHca.55	10,5	1440-1450					550	max. 4,4		
FHmax.	4,0	1500-1530					1300	max. 3,8		
②a	1600	0,3-1,7								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

②b Full load stop Test oil temp 40°C (104°F)		⑥ Rotational speed (limit) Note changed to ) rev/min 3	③a Fuel delivery characteristics		Starting fuel delivery Idle		④a Idle stop	
rev/min 1	cm <sup>3</sup> /1000 strokes 2		rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
1400	65,0-66,5 (64,0-68,0)	1440-1450*	500	55,5-57,5 (53,5-59,5)	100	19,0-21,0 mm RW	-	-
			1100	62,0-64,0 (60,0-66,0)				

Checking values in brackets

\* 1 mm less control rod travel than col 2

12.85

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E21

E21

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 6,2 i 6

1. Edition

En

PE 6 A 90 D 320 RS 2547  
Komb.-Nr. 0 400 676 180

RSV 250-1200 A5C 2203 R

superseded  
company DAF  
engine DT 615

1980  
 0 400 676 180  
 1

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\overset{2,2 - 2,3}{(2,15-2,35)}$  mm (from BDC) RW = 7,5-10,5 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	10,8+0,1	7,2-7,3	0,3 (0,45)			
250	5,9-6,1	0,9-1,3	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control lever deflection in degrees 7	Lower rated speed		3 Torque control	
	mm	mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
2	3					8	9	10	11	
loose	800	0,3-0,7	-	-	-	ca. 22	250	5,5	1000	10,8-10,9
	x = 3,3						100	min. 19,5	400	11,2-11,3
							250	5,9-6,1	300	11,2-11,7
ca. 54	9,8	1240-1250					585-645	=2,0		
2a	4,0	1310-1340								
	1490	0,3-1,4								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note changed to 1 rev/min	3a Fuel delivery characteristics		Starting fuel delivery idle 5		4a Idle stop		
rev/min	cm <sup>3</sup> /1000 strokes		rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	
LDA 1000	0,7 bar 71,5-72,5 (69,5-74,5)	1240-1250*	LDA 600	0 bar 51,5-53,5 (49,0-56,0)	100	140,0-150,0 (137,0-153,0)	0	-	-

Checking values in brackets

\* 1 mm less control rod travel than col 2

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10.85

E22

E22

# D. Adjustment Test for Manifold Pressure Compensator DAF 6,2 i 6

Test at n = 1000 rev/min decreasing pressure - in bar gauge pressure  
 increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel: diminution difference mm (1)
PE 6 A..RS 2547 + A5C 2203 R	0,7	0,25 0,21 0	10,8-10,9 10,6-10,7 10,2-10,5 10,0-10,1

Notes

(1) when n = rev/min and gauge pressure = bar ( maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 6,1 d 3

1. Edition

En

PES 6 A 80 D 410 RS 2527  
Komb.-Nr. 9 400 093 226

RSV 325-1150 A1B 1111 L

supersedes—  
company Deutz Argentinien  
engine F 6 L 913

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\frac{1,9-2,0}{(1,85-2,05)}$  mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre tensioning (torque-control valves) mm
1	2	3	4	2	3	6
1150	9,3-9,4	5,4-5,5	0,25 (0,4)			
325	6,4-6,6	0,6-0,9	0,2 (0,35)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

① Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			④ Control-lever deflection in degrees 7	Lower rated speed		③ Torque control	
	mm	mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
2	3					8	9	10	11	
loose	800	0,3-1,0	-	-	-	ca. 32	325	6,0	1150	9,3-9,4
	x = 4,5						100	min.19,0	500	11,1-11,2
							325	6,4-6,6	800	10,2-10,5
ca. 60	8,3	1190-1200					510-570	= 2,0		
②a	4,0	1215-1245								
	1300	0,3-1,7								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp 40°C (104°F)		⑥ Rotational-speed limitat Note changed to ) rev/min	③a Fuel delivery characteristics		Starting fuel delivery Idle		④a Idle stop	
rev/min	cm <sup>3</sup> /1000 strokes		rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1150	54,0-55,0 (52,5-56,5)	1190-1200*	500	61,5-63,5 (59,5-65,5)	100	19,0-21,0 mm RW	-	-
			800	56,5-58,5 (54,5-60,5)				

Checking values in brackets

\* 1 mm less control rod travel than col 2

12.R5

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# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 HAN 10,8 h 1

1. Edition

En

PE 6 A 95 D 320 RS 2557  
Komb.-Nr. 0 400 676 186

RSV 400-1100 ABC 1117-1 R

supersedes  
company Hanomag  
engine D 963 N  
110 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Part closing at prestroke  $2,15-2,25$   
 $(2,10-2,30)$  mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	9,9-10,0	8,2-8,4	0,35(0,6)			
400	8,0-8,2	3,1-3,9	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed Degree of deflection of control lever rev/min	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees	Lower rated speed		3 Torque control	
	mm	mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-0,7	-	-	-	ca. 21	400	7,6	1100	9,9-10,0
		x = 3,75					100	min. 19,5	500	10,7-10,8
							400	8,0-8,2	865	10,3-10,5
ca. 49	8,9	1140-1150					570-630	= 2,0		
2a	4,0	1200-1230								
	1365	0,3-1,4								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40° C (104° F)		6 Rotational speed limit Note changed to ) rev/min	3a Fuel delivery characteristics		Starting fuel delivery 5 Idle		4a Idle stop	
rev/min	cm <sup>3</sup> /1000 strokes		rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
100	82,0-84,0 (80,0-86,0)	1140-1150*	400	31,0-39,0 (28,5-41,5)	100	122,0-132,0 (119,0-135,0)	-	-

Checking values in brackets

\* 1 mm less control rod travel than col 2

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11.85

TESTING

F1

FA

# Test Specifications Fuel Injection Pumps ① and Governors

PES 4 A 90 D 410 RS 2570 RQV 300-1400 AB 1146-3 L  
Komb.-Nr. 9 400 085 230

supersedes-  
company: Daimler-Benz  
engine: OM 314 A  
81,0 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1400	12,8+0,1	8,0-8,1	0,3(0,5)			
300	8,9-9,1	1,3-1,7	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1400	15,2-17,8	-	-	-	ca. 16	100	min.10,5	300	1,2-1,4
ca. 64	11,8 4,0 1800	1440-1450 1585-1615 0-1,0				400-470	300	8,9-9,1	650	3,3-3,6
							740-800= 2,0		1000	5,4-5,7
									1485	8,6

Torque control travel a = 1,0 mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 1400	0,5 bar 80,0-81,0 (78,0-83,0)	1440-1450*	LDA 500	0,5 bar 74,0-76,0 (72,0-78,0)	100	73,0-83,0 (70,0-86,0)	1400	12,8+0,1
			LDA 500	0 bar 56,5-58,5 (54,5-60,5)			500	13,8+0,1
							1050	13,5+0,2
							1225	12,9+0,3

Checking values in brackets

\* 1 mm less control rod travel than col. 2

# D. Adjustment Test for Manifold Pressure Compensator

MB 3,8 n 12

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
 increasing

Pump/governor	Setting	Measurement	Control rod travel
	Gauge pressure - bar	Gauge pressure = bar	diminution difference mm (1)
PES 4 A..RS 2570 + AB 1146-3 L	0,5	0	13,8-13,9
		0,33	12,1-12,2
		0,23	13,4-13,5
			12,4-12,7

**Notes**

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 8,3 n 5

1. Edition

En

PE 6 A 95 D 410 RS 2575

RSV 250-1200 A 5 C 2198-1 L

supersedes

company DAF

Komb.-Nr. 0 400 676 175

engine DH 825

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\frac{2,0-2,1}{(1,95-2,15)}$  mm (from BDC) RW = 7,5 - 10,5 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1200	10,4+0,1	7,3 - 7,5	0,35(0,6)			
250	6,0-6,2	0,7 - 1,1	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Degree of deflection of control lever rev/min	Upper rated speed rev/min		Intermediate rated speed			4 Control-lever deflection in degrees	Lower rated speed		3 Torque control	
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-0,7				ca.24	250	5,6	1200	10,4-10,5
		X = 5,0					100	min.19,5	500	11,2-11,3
ca.58	9,4	1240-1250					250	6,0 - 6,2	800	11,1-11,2
2a	4,0	1340-1370					635 -	695 = 2,0	940	10,7-11,0
	1505	0,3-1,4								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note changed to ) rev/min	3a Fuel delivery characteristics		Starting fuel delivery 5 Idle		4a Idle stop	
rev/min	cm <sup>3</sup> /1000 strokes		rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1200	73,0 - 75,0 (71,0 - 77,0)	1240-1250*	800	74,5 - 77,5 (72,0 - 80,0)	100	135,0-145,0 (132,0-148,0)		

Checking values in brackets

\* 1 mm less control rod travel than col 2

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F4

F4

# Test Specifications Fuel Injection Pumps ① and Governors

PES 6 A 90 D 410 RS 2596 RQV 300-1400 AB 1146-2 L  
Komb.-Nr. 9 400 085 229

superseder  
company: Daimler-Benz  
OM 352 A  
engine 127 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Testoil-ISO 4113

Port closing at prestroke  $\overset{2,0-2,1}{(1,95-2,15)}$  mm (from BDC)  $RW = 9,0 - 12,0$  mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1400	12,8+0,1	8,1-8,2	0,3(0,5)			
300	8,9-9,1	1,3-1,7	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1400	15,2-17,8	-	-	-	ca. 16	100 300	min.10,5 8,9-9,1	300 650	1,2-1,4 3,3-3,6
ca. 64	11,8 4,0 1800	1440-1450 1585-1615 0-1,0					740-800=2,0		1000 1485	5,4-5,7 8,6

Torque control travel a = 1,0 mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ④a	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1400	0,5 bar 81,0-82,0 (79,0-84,0)	1440-1450*	LDA 500	0,5 bar 76,5-78,5 (73,5-79,5)	100	73,0-83,0 (70,0-86,0) =14,8-15,2 mm RW	1400 500 1050 1225	12,8+0,1 13,8+0,1 13,5+0,2 12,9+0,3
			LDA 500	0 bar 62,0-64,0 (60,0-66,0)				

Checking values in brackets

\* 1 mm less control rod travel than col. 2

# D. Adjustment Test for Manifold Pressure Compensator

MB 5,7 v 15

-2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
 increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PES 6 A..RS 2596 +RQV..AB 1146-2 L	0,50	0 0,33 0,23	13,8-13,9 12,5-12,6 13,5-13,6 12,5-12,8

Notes

(1) when n =

rev/min and  
gauge pressure =

bar (= maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 5,7 v 14

1. Edition

En

PES 6 A 90 D 410 RS 2596  
Komb.-Nr. 0 400 876 310

RSV 350-1200 AOC 1148 L

supersedes

company Daimler-Benz  
engine OM 352 A  
110 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) mm (from BDC) RW 9,0-12,0 mm

Test ISO 4113

Rotational speed rev/min 1	Control rod travel <sup>1</sup> mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1180	12,2+0,1	7,4-7,5	0,3(0,45)			
350	8,6-8,7	1,2-1,6	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control lever deflection in degrees 7	Lower rated speed		3 Torque control	
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	lose	350	8,6	1180	12,2+0,1
ca. 62 2a	x = 5,0						100	min. 19,0	725	13,5+0,1
	11,2	1220-1230					350	8,6-8,7	900	12,9+0,2
	4,0	1335-1365					510-570	= 2,0		
	1460	0,3-1,7								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40 C (104 F)		6 Rotational speed limit Note changed to rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
rev/min 1	cm <sup>3</sup> /1000 strokes 2		rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1200	0,9 bar 74,0-75,0 (72,0-77,0)	1220-1230*	LDA 900	0,9 bar 74,0-78,0 (71,5-80,5)	100	78,0-88,0 (75,0-91,0) = 16,0-16,4 mm RW	-	-
LDA 725	0,9 bar 79,0-81,0 (76,5-83,5)		LDA 500	0 bar 51,0-53,0 (49,0-55,0)				

Checking values in brackets

\* 1 mm less control rod travel than col 2

9.85

# D. Adjustment Test for Manifold Pressure Compensator

MB 5,7 v 14

-2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
 increasing

**Testoil-ISO 4113**

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 A..RS2596 with..AOC1148 L	0,90	0 0,45 0.24	13,5-13,6 11,5-11,6 12,6-12,7 12,0-12,2

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Testing the hydraulic start-locking device :

Locking at 0,75 - 0,85 bar  
 Unlocking at 0,25 - 0,35 bar



# Test Specifications Fuel Injection Pumps ① and Governors

En

PES 6 A 90 D 410 RS 2596

RQV 300-1400 AB 1196 L

supersedes -

company: Daimler-Benz

Komb.-Nr. 9 400 085 222

engine OM 352 A

124 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\overset{2,0-2,10}{(1,95-2,15)}$  mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1400	13,0+0,1	7,8 - 7,9	0,3 (0,5)			
300	9,4-9,6	1,3 - 1,7	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③	rev/min 10	mm 11
max.	1500	15,2-17,8	-	-	-	ca. 30	100	min.11,0	300	0,9-1,3
ca. 63	11,4	1440-1450					300	9,4-9,6	500	2,4-2,6
	4,0	1570-1600					610	-670=2,0	800	4,3-4,5
	1750	0 - 1,0							1100	5,7-5,9
									1500	8,6

Torque control travel a = 1,1 mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1400	0,7 bar 71,5-72,5 (69,5-74,5)	1440-1450*	LDA 600	0,7 bar 71,0-73,0 (68,5-75,5)	100	73,0 - 83,0 =15,6- 16,0 mm RW	1400	12,4-12,5
LDA 900	0,7 bar 72,0-74,0 (69,5-76,5)		LDA 500	0,7 bar 56,0-57,0 (54,0-59,0)			600	13,8-13,9
							900	13,3-13,5
							1100	12,8-13,1

Checking values in brackets

\* 1 mm less control rod travel than col 2

9.85

# D. Adjustment Test for Manifold Pressure Compensator MB 5.7 v 13

Test at n = **500** rev/min decreasing pressure - in bar increasing gauge pressure

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure - bar	Gauge pressure - bar	mm (1)
PES 6 A..RS 2596 +RQV .. AB 1196 L	0,7	0	13,8 - 13,9
		0,3	12,6 - 12,7
		0,24	13,5 - 13,6
			12,8 - 13,0

**Notes**

(1) when n = **rev/min and gauge pressure - bar (- maximum full-load control rod travel)**

# Test Specifications Fuel Injection Pumps ① and Governors

PE 8 A 95 U410 LS 2608

RQV 300-1250 AB 1195 L

supersedes \_

Komb.-Nr. 0 400 648 141

company KHD

1 - 8 - 7 - 2 - 6 - 5 - 4 - 3 je 45° ± 0,5° (± 0,75°)

engine F 8 L 413 F  
188 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\frac{2,0-2,1}{(1,95-2,15)}$  mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	10,4+0,1	9,2 - 9,4	0,35(0,6)			
300	6,4-6,6	0,8 - 1,4	0,35(0,55)			

Test ISO 4113

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1280	15,2-17,8	-	-	-	ca. 15	100	min. 8,1	300	1,2-1,3
ca. 46	9,4 4,5 1500	1290-1300 1365-1395 0,3-1,0				300-450	300	6,5-6,7	500 1000 1300 1380	2,6-2,9 5,4-5,6 7,7-7,8 8,7

Torque control travel a = 0,45 mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
1250	91,5-93,5 (89,5-95,5)	1290-1300 *	750	93,0-96,0 (90,5-98,5)	100	116,5-126,5 (113,5-129,5)	1250 500 845 950	10,4+0,1 10,8+0,1 10,6+0,2 10,4+0,2

Checking values in brackets

\* 1 mm less control rod travel than col 2

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 VAL 3,3 a 1

2. Edition

En

PES 3 A 95 D 320 RS 2655  
Komb.-Nr. 0 400 873 032  
1-2-3 je 120° ± 0,5° (± 0,75°)

RSV 325-1150 A 2 C 2178-1 R

superseded by 1.85  
company Valmet  
engine J11 D 56

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing difference between control-rod travel 9 mm and max. 4,5-5,5° camshaft

Port closing at prestroke 2,5-2,6 (2,45-2,65) mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre tensioning (torque-control valve) mm 6
1130	10,4+0,1	8,9-9,1	0,35(0,6)			
325	6,5-6,7	2,2-2,8	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control lever deflection in degrees 7	Lower rated speed		3 Torque control	
	mm 2	mm rev/min 3	4	5	6		rev/min 6	mm 9	rev/min 10	mm 11
loose	800	0,3-0,7	-	-	-	ca. 27	325	6,1	1130	10,4-10,5
	x = 5,0						325	6,5-6,7	500	11,8-11,9
							325	= 2,0	915	11,2-11,4
ca. 54	9,4	1170-1180								
(2a)	4,0	1235-1265								
	1405	0,3-1,4								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop Test oil temp 40°C (104 F)		6 Rotational speed limit Note changed to ) rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery 5 Idle		4a Idle stop	
rev/min 1	cm <sup>3</sup> /1000 strokes 2		rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
1130	88,5-90,5 (86,5-92,5)	1170-1190*	500	94,5-96,5 (92,0-99,0)	100	190,0-200,0 (187,0-203,0) =19,5-21,0 mm RW	-	-
					325	22,0-28,0 (19,5-30,5)		

Checking values in brackets

\* 1 mm less control rod travel than col 2

1.86

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F12

F12

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MWM 3,1 b  
3. Edition

En

PES 3 A 90 D 320/3 RS 2658 RSV 325-1500 A2B 505-2 R  
Komb.-Nr. 0 400 863 008 A2C 505-2 R  
1 - 2 - 3 je  $120^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

superseded 5.84  
company MWM  
engine D 226 B-3

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $2,95-3,05$   
 $(2,90-3,10)$  mm (from BDC) RW = 9,0

Testoil-ISO 4113

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1500	11,2+0,1	9,0-9,1	0,3(0,45)			
325	7,0-7,2	0,8-1,4	0,25(0,45)			
Port closing difference = 3,5-4,5 mm between control-rod travel 9 mm and control-rod travel 12 mm						

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-0,7	-	-	-	ca.24	325	6,6	-	-
	x = 4,75						100	min.19,5		
ca.63	9,5	1540-1550					325	7,0-7,2		
2a	4,0	1615-1645					465	5,5-2,0		
	1780	0,3-1,4								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40°C (104°F)	Note	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	3	4	5	6	7	8	9		
1500	1540-1550*	-	-	100	131,0-141,0 (128,0-144,0) = 19,5-21,0 mm RW	-	-		

Checking values in brackets

\* 1 mm less control rod travel than col 2

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10.85

# Test Specifications Fuel Injection Pumps **(1A)** and Governors

**40**

WPP 001/4 MWM 6,2 e

3. Edition

En

PES 6 A 90 D 320/3 RS 2660

RSV 325-1500 A 2 B 505 - 2 R  
A 2 C 505 - 2R

supersedes **5.84**

company **MWM**

engine **D 226-6**

Komb.-Nr. 0 400 866 112

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke <sup>2,95-3,05</sup>  
(2,90-3,10) mm (from BDC)

Testi-ISO 4113

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1500	11,2+0,1	9,0 - 9,1	0,3 (0,5)			
325	7,0-7,2	0,8 - 1,4	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

① Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			④ Control-lever deflection in degrees 7	Lower rated speed		③ Torque control	
	mm	mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 24	325	6,6	-	-
ca. 63	9,5	1540-1550					100	min. 19,5		
	4,0	1615-1645					325	7,0-7,2		
②a	1780	0,3-1,					465 -	525-2,0		

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp 40°C (104°F)		⑥ Rotational-speed limit Note changed to ) rev/min	③a Fuel delivery characteristics		Starting fuel delivery Idle		④a Idle stop	
rev/min	cm <sup>3</sup> /1000 strokes		rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1500	89,5 - 90,5 (87,5 - 92,5)	1540-1550*	-	-	-	-	-	-

Checking values in brackets

\* 1 mm less control rod travel than col 2

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F14

FA4

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MWM 6,2 e 3  
2. Edition

En

PES 6 A 90 D 320/3 RS 2660 RSV 325-1200 AOC 2182-1R  
Komb.-Nr. 0 400 866 114

supersedes 9.84  
company MWM  
engine TD 226 B-6

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke <sup>2,95-3,05</sup> (2,90-3,10) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1200	12,0+0,1	9,9-10,0	0,3(0,45)			
325	6,9-7,1	0,8-1,4	0,25(0,4)			

Adjust the fuel delivery from each outlet according to the values in

Test oil ISO 4113

## B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-0,7 X = 3,25	-	-	-	ca. 18	325	6,5	1200	12,0-12,1
ca. 45	11,0	1240-1250					100	min. 19,5	500	12,5-12,6
2a	4,0	1300-1330					325	6,9-7,1	1125	12,3-12,5
	1465	0,3-1,4					495-555	= 2,0		

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to )				Idle			
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm	rev/min
1	2	3	4	5	6	7	8	9	
LDA 1200	0,7 bar 99,0-100,0 (97,0-102,0)	1240-1250*	LDA 500	0 bar 62,0-63,0 (60,0-65,0)	100	135,0-145,0 (132,0-148,0) = 19,5- 21,0 mm RW	0 - (0)	-	-

Checking values in brackets

\* 1 mm less control rod travel than col 2

10.85

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# D. Adjustment Test for Manifold Pressure Compensator

MWM 6,2 e 3 -2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
 increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES6A..RS2660 +RSV..A0C2182-1R	0,70	0	12,5-12,6
		0,46	10,2-10,3
		0,21	12,0-12,1
			10,8-11,0

**Notes**

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

F16

En

616



# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 LIE 5,6 a

2. Edition

En

PES 4 A 95 D 410 RS 2685

RSV 400-1000 A 1 C 2187 L

supersedes 8.84

company Liebherr

Komb.-Nr. 0 400 874 238

engine D 904 NA  
70 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $2,7-2,8$   
( $2,65-2,85$ ) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque control valve) mm 6
1000	9,7-9,8	7,9-8,1	0,35(0,6)			
400	6,1-6,3	1,0-1,6	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

Test ISO 4113

## B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-0,7	-	-	-	ca. 23	400	5,7	1000	9,7-9,8
	x = 2,5						100	min. 19,5	550	9,7-9,9
ca. 50	8,7	1040-1050					400	6,1-6,3	430	10,9-11,5
2a	4,0	1065-1095					455-515	2,0		
	1230	0,3-1,4								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to 1 rev/min				Idle			
rev/min 1	cm <sup>3</sup> /1000 strokes 2	3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9	
1000	79,0-81,0 (77,0-83,0)	1040-1050*	600	69,0-72,0 (66,5-74,5)	100	120,0-130,0 (117,0-133,0) = 19,5-21,0 mm RW	-	-	

Checking values in brackets

\* 1 mm less control rod travel than col 2

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10.85

F17

6/7

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 LIE 8,4 a

2. Edition

En

PES 6 A 95 D 410 RS 2689 RSV 400-1000 A 1 C 2187 L  
Komb.-Nr. 0 400 876 322

supersedes 8.84  
company Liebherr  
engine D 906 NA  
150 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

2,7-2,8  
Port closing at prestroke (2,65-2,85) mm (from BDC)

Test Bench 410 RS 2689

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre tensioning (torque control valve) mm
1	2	3	4	2	3	6
1000	9,7-9,8	8,1-8,3	0,35(0,6)			
400	6,1-6,3	1,0-1,6	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-0,7	-	-	-	ca. 23	400	5,7	1000	9,7-9,8
	x = 2,5						100	min. 19,5	550	9,7-9,9
							400	6,1-6,3	430	10,9-11,5
							455-515	5 = 2,0		
ca. 50	8,7	1040-1050								
2a	4,0	1065-1095								
	1230	0,3-1,4								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery idle		5 Idle stop	
Test oil temp 40°C (104°F)		Note changed to )							
rev/min	cm <sup>3</sup> /1000 strokes	rev/min		rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
1000	81,0-83,0 (79,0-85,0)	1040-1050*		600	70,0-73,0 (67,5-75,5)	100	120,0-130,0 - (117,0-133,0)	0 -	-
						400	10,0-16,0 (7,5-18,5)		

Checking values in brackets

\* 1 mm less control rod travel than col 2

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10.83

F18

F19

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 6,2 o 3

1. Edition

En

PES 6 A 95 D 320 RS 2693  
Komb.-Nr. 0 400 876 327

RSV 300-1300 AOC 2195 R

superseded by  
company DAF  
DNT 620  
engine 130,0 kW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\begin{matrix} 2,0-2,1 \\ (1,95-2,15) \end{matrix}$  mm (from BDC) ; RW = 7,5 - 10,5 mm ; cyl. 1;

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
850	11,5+0,1	7,6-7,8	0,35(0,45)			
300	6,1-6,3	0,7-1,1	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever mm	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees	Lower rated speed		3 Torque control	
	mm	mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-0,7	-	-	-	ca. 25	300	5,7	1290	11,0-11,1
		x = 5,0							500	11,6-11,7
ca. 55	10,0	1330-1340					100	min. 19,5	1015	11,3-11,5
2a	4,0	1410-1440					300	6,1-6,3		
	1570	0,3-1,4					560-620	=2,0		

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note changed to 1 rev/min	3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
rev/min	cm <sup>3</sup> /1000 strokes		rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 850	0,7 bar 76,0-78,0 (74,0-80,0)		LDA 1290	0,7 bar 75,5,78,5 (73,0-81,0)	100	130,0-140,0 (127,0-143,0)	0 -	-
			LDA 600	0 bar 65,0-67,0 (63,0-69,0)	300	7,0-11,0 (4,5-13,5)		

Checking values in brackets

\* 1 mm less control rod travel than col 2

10.85

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# D. Adjustment Test for Manifold Pressure Compensator

DAF 6,2 o 3

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure  
 increasing

Testoil-ISO 4113

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PES 6 A..RS 2693 with AOC 2195 R	0,7	0 0,25	11,5-11,6 11,2-11,4 11,4-11,5

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 6,0 c 1

1. Edition

En

PES 6 A 90 D 410 RS 2710

RSV 350-750 A 0 C 2006-3 L

supersedes -

company

Daimler-Benz

Komb.-Nr. 0 400 876 334

engine

OM 366

54,0 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\frac{2,25-2,35}{(2,20-2,40)}$  mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre tensioning (torque control valve) mm
1	2	3	4	2	3	6
700	11,4±0,1	5,4 - 5,5	0,3 (0,45)			
350	8,2-8,4	0,6 - 1,2	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

① Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			④ Control lever deflection in degrees 7	Lower rated speed		③ Torque control	
	mm	mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
2	3					8	9	10	11	
loose	800	0,3-1,0	-	-	-	ca. 20	350	8,3	-	-
ca. 32	x =						100	min. 19,5		
②a	10,4	750-755					350	8,2-8,4		
	4,0	775-788					380 - 420	=2,0**		
	900	0,3-1,4								

\*\* The numbers denote the sequence of the tests Set idle-speed auxiliary spring at 2 mm control-rod travel,

## C. Settings for Fuel Injection Pump with Fitted Governor

②b Full load stop Test oil temp 40 C (104 F)		⑥ Rotational speed limit Note changed to ) rev/min	③a Fuel delivery characteristics		Starting fuel delivery idle		⑤ ④a Idle stop	
rev/min	cm <sup>3</sup> /1000 strokes		rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
700	53,5 - 54,5 (51,5 - 56,5)	750-755 *	-	-	100	78,0-88,0 (75,0-91,0)	-	-

Checking values in brackets

\* 1 mm less control rod travel than col 2

10.85

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F21

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# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DEE 7,6 d  
2. Edition

En

US-PES 6 A 100 D 410 RS 3036  
Komb.-Nr. 9 400 230 020

US-RSV 600-1100 A 2 B 2079L supersedes 9.83  
company John Deere  
engine 6466 T  
132 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $1,95-2,05$  mm (from BDC)  
(1,90-2,10)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	10,8+0,1	10,9-11,1	0,3(0,6)			
600	5,2-5,4	1,2-1,6	0,3(0,55)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

## B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control-lever deflection, in degrees 7	Lower rated speed		3 Torque control	
	mm 2	mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 22	600	4,7	1100	10,8-10,9
ca. 42	9,8	1145-1155					100	min. 19,0	750	11,6-11,7
(2a)	4,0	1185-1215					600	5,1-5,3		
	1285	0,3-1,7					630-690	= 2,0		
							800	max. 1,0		

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note changed to 1 rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
rev/min 1	cm <sup>3</sup> /1000 strokes 2		rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1100	0.8 bar 109,0-111,0 (105,0-114,0)	1145-1155*	LDA 750	0,8 bar 116,5-119,5 (115,0-121,0)	100	170,0-195,0	0 -	-
			LDA 500	0 bar 68,5-71,5 (65,0-73,0)	High 1200	idle speed 19,0-29,0		

Checking values in brackets

\* 1 mm less control rod travel than col 2

**BOSCH**

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10.85

F22

122

# D. Adjustment Test for Manifold Pressure Compensator

DEE 7,6 d

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
 increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
US-PES6A..RS3036 + US-RSV..A2B2079L	0,43	0,19	11,5 - 11,6 9,8 - 10,2

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 FEB 6, 11

1. Edition

En

PES 6 MW 100/320 RS 1132  
RSV 325-1250 MW 2 A 308-3  
U 403 476 042

supersedes  
company Volvo Penta  
TD 61 APP  
engine 147 kW

TEST SPECIFICATIONS

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\begin{matrix} 2,90-3,00 \\ (2,85-3,05) \end{matrix}$  mm (from BDC) RW = 9 - 12 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre tensioning (torque control valve) mm 6
1000	10,8-10,9	8,5-8,7	0,35(0,6)			
325	6,1-6,2	1,2-1,6	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0				ca. 24	325	6,1-6,2		
							100	min.19,0		
ca. 54		1290-1300=9,8 1340-1370=4,0 1450=0,3-1,7								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 Idle stop	
Test oil temp 40 °C (104 °F)	Note changed to )	Note	Note	Note	Note	Note	Note	Note	Note
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9	
1000	85,0-87,0 (83,0-89,0)					100	140-160 (137-163)		
						325	12,0-16,0 (9,5-18,5)		

Checking values in brackets

\* 1 mm less control rod travel than col 2

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11.85



# Test Specifications Fuel Injection Pumps and Governors

Test: 190 1110

PES 4 M 55 C 320 RS 107-1  
 RSF 375/2250 M 18  
 Komb.-Nr. 0 400 074 961 Sales model 0 400 074 958  
 1 - 3 - 4 - 2  
 0 - 90-180-270

supersedes 1.85  
 company Daimler-Benz  
 engine OM 616  
 53 kW (72) PS

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $2,20-2,30$  mm (from BDC) Control rod travel  
 $(2,15-2,35)$  **20 mm**

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (compensating valve) mm 6
1000	$13,4^{+0,1}$	3,9-4,0	0,25(0,30)			
375 1800 2200	6,0-6,2	0,6-0,7	0,1 (0,15) 0,25(0,3) 0,25(0,3)			

Set uniform delivery according to the values in

Checking values in brackets

## B. Governor Settings

Lower rated speed			Upper rated speed			Variations in control rod travel		
Degree of deflection of control lever 1	Control rod travel mm 2	Rotational speed rev/min 3	Degree of deflection of control lever 4	Control rod travel mm 5	Rotational speed rev/min 6	7	Rotational speed rev/min 8	Control rod travel mm 9
9-13	① min. 11,0 ② max. 10,5 ③ 6,0-6,2 ④ 4,8-5,0 ⑤ 2,0	250 300 375 450 ** -	50	⑦ 12,5-12,7 ⑧ 8,2-8,6 ⑨ 0-1,0 ⑩ ⑪	2200 2500 -		⑫ 100 ⑬ 1800 ⑭ 1000	min. 20,1 12,8-13,0 13,4-13,5
							⑥	Switching point

## C. Settings for Fuel Injection Pump with Governor Mounted

Full-load delivery Test oil temp 40°C (104°F)		Full-load speed regulation	Variations in fuel delivery		Starting fuel delivery Idle		Difference
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	cm <sup>3</sup> /1000 strokes 8
2200	39,5-41,5 (38,5-42,5)	2500* RW 8,2-8,6	1800	39,0-41,0 (38,0-42,0) 39,0-40,0 (38,0-41,0)	100	min. 53,0	6,0
			1000		375	6,0-7,0 (5,5-9,0)	1,0
					2500	23,0-27,0 (22,0-28,0)	2,5 See ⑮ 3,0 Point 8 a ⑯

Checking values in brackets

\*ca. 4,2 less control rod travel than in Column 2

1. \*\* Checking the idle speed auxiliary spring setting at  $n = 450$  rpm, control rod travel (4,7-5,1 mm).
2. Adjusting the idle control-lever position:  
At  $1000 \text{ min}^{-1}$ , control-rod travel 1,4 - 1.5 mm.
3. Testing the idle-speed auxiliary spring shutoff  
Control-lever position  $47^{\circ}$ . No change in control-rod travel after switching point up to  $550 \text{ min}^{-1}$ .  
Control-lever position  $30^{\circ}$ . Rotational-speed range  $350 \text{ min}^{-1}$  -  $450 \text{ min}^{-1}$ .
4. Testing the pneumatic shutoff box  
Control lever against idle stop.  
At  $n = 375 \text{ min}^{-1}$  and 450 mbar (vacuum) (338 mmHg) the control rod must move briskly to RW (control-rod travel) = 0 mm.

# Test Specifications Fuel Injection Pumps and Governors

Testspec 1110

PES 5 M 55 C 320 RS 108-1  
RSF 350/2300 M 16  
Komb.-Nr. 0 400 075 987 Sales model 0 400 075 988  
1 - 2 - 4 - 5 - 3  
0 - 72-144-216-288 ± 0,50 (0,75)

supersedes 1.85  
company Daimler-Benz  
engine OM 617  
65 kW (88 PS)  
Sweden version

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $2,20-2,30$  mm (from BDC)  
 $(2,15-2,35)$  Control rod travel  $18,5-21,5$

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre tensioning (compensating valve) mm
1	2	3	4	2	3	6
1000	13,4 <sup>+0,1</sup>	3,9-4,0	0,25 (0,3)			
350 1800 2200	6,0-6,2	0,6-0,7	0,1 (0,15) 0,25 (0,3) 0,25 (0,3)			

Set uniform delivery according to the values in [ ]

Checking values in brackets

## B. Governor Settings

Lower rated speed			Upper rated speed			Variations in control rod travel		
Degree of deflection of control lever	Control rod travel mm	Rotational speed rev/min	Degree of deflection of control lever	Control rod travel mm	Rotational speed rev/min	Rotational speed rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9
9-13	① min. 10,0	250	50	⑦ 12,5-12,7	2200	7	⑫ 100	min. 20,1
	② max. 9,5	300		⑧ 8,6-9,0	2500		⑬ 1800	13,0-13,2
	③ 6,0-6,2	350		⑨ -	-		⑭ 1000	13,4-13,5
	④ 4,6-4,8	450 **		⑩ 0-1,0	2950		⑥	Switching point
	⑤ 2,0	780-820		⑪				

## C. Settings for Fuel Injection Pump with Governor Mounted

Full load delivery (19)		Full load speed regulation (8a)	Variations in fuel delivery (17)		Starting fuel delivery idle (18)		Difference
Test oil temp 40°C (104°F)							
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	cm <sup>3</sup> /1000 strokes
1	2	3	4	5	6	7	8
2200	39,5-41,5 (38,5-42,5)	2500* RW 8,6-9,0	1800	39,0-41,0 (38,0-42,0)	100	min. 53,0	6,0 (12a)
			1000	39,0-40,0 (38,0-41,0)	350	6,0-7,0 (5,5-9,0)	1,0 (15)
					2500	23,0-27,0 (22,0-28,0)	2,5 See Point 8 a (16)

Checking values in brackets

\*ca. 4,0 less control rod travel than in Column 2

1. \*\* Checking the idle speed auxiliary spring setting at  $n = 450 \text{ rpm}$ , control rod travel (4,5-4,9mm).
2. Adjusting the idle control-lever position:  
At  $1000 \text{ min}^{-1}$ , control-rod travel 1,4 - 1.5 mm.
3. Testing the idle-speed auxiliary spring shutoff  
Control-lever position  $47^{\circ}$ . No change in control-rod travel after switching point up to  $550 \text{ min}^{-1}$ .  
Control-lever position  $30^{\circ}$ . Rotational-speed range  $350 \text{ min}^{-1}$  -  $450 \text{ min}^{-1}$ .
4. Testing the pneumatic shutoff box  
Control lever against idle stop.  
At  $n = 375 \text{ min}^{-1}$  and 450 mbar (vacuum) (338 mmHg) the control rod must move briskly to RW (control-rod travel) = 0 mm.

# Test Specifications Fuel Injection Pumps and Governors

TEST SPEC 4113

PES 6 M 55 C 320 RS 156  
RSF 315/2300 M 59-3  
0 400 076 994  
1- 5- 3- 6- 2- 4  
0-60-120-180-240-300

supersedes  
company Daimler Benz  
engine OM 603  
80 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Note: Before starting testing, observe the important instructions on the reverse.

Port closing at prestroke **2,00-2,10** mm (from BDC) **20-22** Control rod travel  
(1,95-2,15)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (compensating valve) mm
1	2	3	4	2	3	6
1000	<b>11,3+0,1</b>	<b>3,15-3,25</b>	<b>0,25(0,3)</b>			
290	<b>5,4-5,6</b>	<b>0,55-0,65</b>	<b>0,1(0,15)</b>			

Set uniform delivery according to the values in

Checking values in brackets

## B. Governor Settings

Lower rated speed			Upper rated speed			Variations in control rod travel		
Degree of deflection of control lever	Control rod travel mm	Rotational speed rev/min	Degree of deflection of control lever	Control rod travel mm	Rotational speed rev/min		Rotational speed rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
13-17	① min. 7,0	220	50	⑦ 10,6-10,8	2200		⑫ 100	min. 20,1
	② 5,4-5,6	290		⑧ 7,8-8,2	2500		⑬ 1800	10,9-11,1
	③ 4,2-4,4	360**		⑨ -			⑭ 1000	11,3-11,4
	④ -			⑩ 0-1,0	2950			
	⑤ 1,5	620-720		⑪			⑥	Switching point

## C. Settings for Fuel Injection Pump with Governor Mounted

Full load delivery ⑰		Full load speed regulation ⑱a	Variations in fuel delivery ⑰		Starting fuel delivery idle		Difference
Test oil temp 40°C (104°F)							
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	cm <sup>3</sup> /1000 strokes
1	2	3	4	5	6	7	8
2200	<b>33,5-35,5</b> (32,5-36,5)	2500*	1800	<b>34,0-35,5</b> (33,0-36,5)	100	min. 55	6,0 ⑫a
					290	5,5-6,5 (5,0-9,5)	1,0 (1,5)
			1000	<b>31,5-32,5</b> (30,5-33,5)	2500	22,0-26,0 (21,0-27,0)	2,5 See ⑮ (3,0) Point 8 a ⑯

Checking values in brackets

\*ca. 2,6 less control rod travel than in Column 2

1. **\*\* Supplementary idle spring inspection, setting at  $n = 360$  1/min control-rod travel (4.1-4.5 mm).**
2. **Set idle control-lever position:**  
At 1000 1/min, control-rod travel 0.9-1.0 mm.
3. **Check supplementary idle spring cutoff**  
Control-lever position  $49^\circ$ , after switch-over point (of starting curve) up to 1000 1/min max. 0.2 mm control-rod travel deduction allowable.  
Control-lever position  $46.5^\circ$ , after switch-over point (of starting curve) control-rod travel deduction must be greater than 0.2 mm.
4. **Checking pneumatic shutoff box**  
Control lever at idle stop.  
At  $n = 290 \text{ min}^{-1}$  and  $p_u = 450 \text{ mbar}$ , control rod must readily go to a travel of 0 mm.
5. **Overflow valve 1 469 990 351**
6. **Port closing (difference) between greatest/smallest value  $1^\circ$  camshaft maximum**
7. **FBG setting**  
FBG setting and blocking per mean port closing value of all cylinders,  $19.5 \pm 0.2$  (0.3) degrees camshaft after cyl. 1.
8. **Checking ELR control magnet**
  - Control lever at idle stop  
At  $n = 315$  1/min,  $I = 1.8 \text{ A}$ , Control-rod travel = (12.6-14.0 mm, fuel delivery (32.0-40.0) ccm/1000 strokes.
  - Note:  
If the fuel delivery measured is higher than 2.0 ccm/1000 strokes outside of inspection tolerance, replace control magnet.
  - Control lever at full-load stop  
At  $n = 2950$  1/min,  $I = 3 \text{ A}$  (short duration), control-rod travel = 0-1.0 mm
  - Start check:  
At  $n = 100$  1/min,  $I = 1.8 \text{ A}$ , fuel delivery min. 55.0 ccm/1000 strokes.
9. **Intermediate control curve (control-lever position) inspection**  
Control lever  $30^\circ$ ,  $n = 1000$  1/min, control-rod travel = 6.8-7.5 mm

# Test Specifications Fuel Injection Pumps ① and Governors

PES 6 MW 100/320 RS 1004  
RQV 300 ... 1400 MW 6 R  
Komb.-Nr. 0 403 446 104  
1 - 5 - 3 - 6 - 2 - 4 = 0 - 60 - 120 - 180 - 240 - 300 ± 0,50 (0,75)

supersedes 9.82  
company Volvo  
engine TD 60 B

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\frac{2,80-2,90}{(2,75-2,95)}$  mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	10,6+0,2	8,35 - 8,55	0,35(0,6)			
300	5,2-5,4	0,95-1,35	0,35(0,55)			
1400	10,6+0,2		0,5 (0,7)			
500	9,3+0,1		0,35(0,6)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 3	rev/min 10	mm 11
max.	1400 1700	15,2-17,8 0,0-1,0				12	100 300 420-480 = 2,0	mind.7,0 5,2-5,4	300 500	1,3-1,4 2,8
ca. 64	10,7 4,0	1440-1450 1550-1580				3a			1450	8,2

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1000	0,67 bar 83,5-85,5 (81,5-87,5)	1440-1450*	LDA 1400	0,67 bar 85,0-89,0 (83,0-91,0)	100	120,0-130,0 (117,0-133,0)		
			LDA 500	0 bar 48,0-50,0 46,0-52,0	300	9,5-13,5 (7,0-16,0)		

Checking values in brackets

\* 1 mm less control rod travel than col 2

# D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
 increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
Ppe. RS 1004 mit MW 6 R	0,21	0,27 0 0,67	9,7-9,8 10,2-10,5 9,3-9,4 10,6-10,8

Notes

(1) when n = rev/min and gauge pressure = bar (- maximum full-load control rod travel)



# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 6,0 n

En

5. Edition

PES 6 MW 100/320 RS 1004 Z  
RQV 300 ... 1400 MW 22  
0 403 446 110

supersedes 5.82  
company: Volvo  
engine: TD 60 B

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\begin{matrix} 2,80-2,90 \\ (2,75-2,95) \end{matrix}$  mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	10,7+0,1	8,35-8,55	0,35(0,6)			
300 1000	4,8-5,0 9,5-9,6	0,95-1,35	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③	rev/min 10	mm 11
max.	1400 1700	15,2-17,8 0,0-1,0				ca. 11	100 300	min. 6,5 4,8-5,0		
ca. 60	9,6 4,0	1140-1450 1565-1595				320-460 ③a				

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1000	0,50 bar 83,5-85,5 (81,5-87,5)	1440-1450*	LDA 1000	0 bar 72,0-74,0 (70,0-76,0)	100 300	120,0-150,0 (117,0-153,0) 9,5-13,5 (7,0-16,0)		

Checking values in brackets

\* 1 mm less control rod travel than col 2

# D. Adjustment Test for Manifold Pressure Compensator

VOL 6,0n

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
 increasing

Testoil-ISO 4113

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
RS 1004 Z with MW 22	0,19	0,25 0 0,50	9,9-10,0 10,3-10,6 9,5-9,6 10,7-10,8

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 Vol 6,0 t 1

1. Edition

En

Testo-ISO 4113

PES 6 MW 100/320 RS 1004-1  
RSV 325-1400 MW 2/308  
0 403 476 017

supersedes  
company Volvo  
engine TID 60 D  
150 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\frac{2,80-2,90}{(2,75-2,95)}$  mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	10,3-10,4	7,6-7,8	0,35 (0,6)			
325	4,4-4,6	0,95-1,35	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0				ca. 20	325	4,0	350	10,9-11,0
ca. 54							325	4,4-4,6	500	10,3-10,4
②a							100	min. 19		
		1440-1450 = 9,3 1515-1545 = 4,0 1650=0,3-1,7								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limit		③a Fuel delivery characteristics		Starting fuel delivery Idle ⑤		②a Idle stop	
Test oil temp 40°C (104°F)		Note changed to )							
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9	
700	76,0-78,0 (74,0-80,0)		1000	82,0-86,0 (80,0-88,0)	100	120-130 (117-133)			
					325	9,5-13,5 (7,0-16,0)			

Checking values in brackets

\* 1 mm less control rod travel than col 2

10 .85

G11

**BOSCH**

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung  
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# Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 MB 8,7j1

En

1. Edition

Testoil-ISO 4113

PE 6 MW 100/720 RS 1007-1  
RQ 300/1250 MW 12-1  
U 403 546 U04  
1 - 5 - 3 - 6 - 2 - 4 je 60°

supersedes  
company Daimler-Benz  
engine O M 360 A  
155 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $3,80-3,90$   
(3,75-3,95) mm (from BDC) RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	11,2+0,1	9,95-10,15	0,35(0,6)			
300	6,9-7,1	1,35-1,75	0,35(0,55)			
750	11,2+0,1		0,5(0,7)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Checking of slider PRG check rev/min 1		Control rod travel mm 2		Full-load speed regulation Setting point rev/min 3			Test specifications Control rod travel mm 4			rev/min 6		Idle speed regulation Setting point rev/min 7		Control rod travel mm 8		Test specifications rev/min 9		Control rod travel mm 10		Torque control rev/min 11		Control rod travel mm 12	
650	13,1-13,9	650	13,5	10,2	1295-1310	300	7,0	220	min.9,0														
1550	VH 46° 0,1-1,0			4,0	1395-1425			300	6,9-7,1					395-435 = 2,0									

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F) rev/min 1		cm <sup>3</sup> /1000 strokes 2		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		cm <sup>3</sup> /1000 strokes 5		Starting fuel delivery Idle speed rev/min 6		cm <sup>3</sup> /1000 strokes / mm Control rod travel 7	
1250	99,5-101,5 (97,5-103,5)	500	750	93,0-97,0 (91,0-99,0)	100	125,0-135,0 (122,0-138,0)	300	13,5-17,5 (11,0-20,0)					

Checking values in brackets

# Test Specifications Fuel Injection Pumps ① and Governors

PES 6 MW 100/720 RS 1008  
RQV 300 ... 1300 MW 13 DR  
i - 5 - 3 - 6 - 2 - 4 = 0 - 60 - 120 - 180 - 240 - 300 ± 0,5 (0,75) engine

supersedes 5.82  
company: Fiat  
8360.05

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $2,50-2,60$  mm (from BDC) at 10,5 mm RW  
(2,45-2,65)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1300	12,5 <sup>+0,2</sup>	8,85-9,05	0,35(0,6)			
300 800	7,5-7,6 13,0 <sup>+0,2</sup>	0,95-1,35	0,35(0,55) 0,5(0,7)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1300 1600	15,2-17,8 0,0-1,0	-	-	-	ca. 14	100 300	min. 9,5 7,5-7,6	300 740 1350	0,3-0,9 3,4 8,0
ca. 60	11,6 4,0	1350-1360 1440-1470				380-485 (3a)				

Torque control travel a = 0,5 mm Instructions  
Test electrically unlocked starting delivery with 12 V.

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ④a	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
1300	88,5-90,5 (86,5-92,5)	1350-1360*	800	86,5-90,5 (84,5-92,5)	100	135-145 (132-148)	900 1200	13,0 <sup>+0,2</sup> 12,5 <sup>+0,2</sup>
					300	9,5-13,5 (7,0-16,0)		
					100-220(80-250)			

Checking values in brackets

\* 1 mm less control rod travel than col. 2

12.85

# Test Specifications Fuel Injection Pumps ② and Governors

Testo 150 4115

PE 8 MW 100/720 LS 1010  
RQ 300/1150 MW 17  
Komb.-Nr. 0 403 548 001

supersedes 5.82  
company KHD  
engine BF 8 L 413 F  
212 kW (288 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\overset{3,10-3,20}{(3,05-3,25)}$  mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	12,2+0,1	13,1 - 13,3	0,35(0,6)			
300 500	6,3-6,5 9,9-10,0	1,2-1,6	0,35(0,55) 0,55(0,7)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Control rod travel		Setting point		Test specifications		Setting point		Test specifications		Control rod travel	
rev/min	mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
650	18,2-20,8	650	19,0	9,2	1195-1210	300	6,4	100	min.7,8	1150	10,2-10,5
1400	VH = 46° 0,0-1,0			4,0	1240-1270			300 2,0	6,3-6,5 365-405	1050 750	11,2-11,4 12,2-12,3

Torque-control travel on flyweight assembly dimension a =  mm Speed regulation: At  1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm <sup>3</sup> /-1000 strokes	rev/min	rev/min	cm <sup>3</sup> /-1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes / mm
1	2	3	4	5	6	7
LDA 750	0,74 bar 131,0-133,0 (129,0-135,0)		LDA 500	0 bar 87,5-89,5 (85,5-91,5)	100 300	136,5-146,5 (133,5-149,5) 12,5-16,5 (10,0-19,0)

Checking values in brackets

# D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
 increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference mm (1)
	Gauge pressure - bar	Gauge pressure - bar	
LS 1010 MW 17	0,16	0,50 0,74 0	10,3-10,5 11,8-11,9 12,2-12,3 9,9-10,0

Notes  
 (1) when n rev/min and gauge pressure - bar ( - maximum full-load control rod travel)

Test electrically unlocked starting delivery with 24 V.

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 12,7 d  
8. Edition

En

PE 8 MW 100/720 LS 1010  
RQV 300-1150 MW 23  
Komb.-Nr. 0 403 548 002

1 - 8 - 7 - 2 - 6 - 5 - 4 - 3  
0 - 45 - 90 - 135 - 180 - 225 - 270 - 315 ± 0,5 (0,75)

supersedes 8.83  
company: KHD  
engine: BF 8 L 413 F  
212 kW (288 PS)  
/ 2100 min<sup>-1</sup>  
206 kW  
/ 2300 min<sup>-1</sup>  
(Maxidyne)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\frac{3,10-3,20}{(3,05-3,25)}$  mm (from BDC) RW = 9,0-12,0

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,5+0,1	13,6-13,8	0,35(0,6)			
300	6,3-6,5	1,25-1,65	0,35(0,55)			
500	10,2-10,8					

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1180 1400	15,2-17,8 0- 1,0				ca. 18	100 300	min. 8,0 6,3-6,5	300 500 1200	1,4 3,2-3,8 8,5-8,6
ca. 63	9,2 4,0	1160-1170 1235-1265					430-490 = 2,0			

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 700	0,8 bar 136,0-138,0 (134,0-140,0)	1160-1170*	LDA 500	0 bar 94,0-96,0 (92,0-98,0)	100 300 100-230 (80-250)	136,5-146,5 (133,5-149,5) 12,5-16,5 (10,0-19,0)	700 1050 780 1150	12,5+0,1 11,2+0,1 12,5+0,1 10,2+0,3

Checking values in brackets

\* 1 mm less control rod travel than col. 2

12.85



# D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
 increasing

KHD 12,7 d -2-

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
LS 1010 MW 23	0,8	0,24 0,38 0	12,5-12,6 10,5-10,6 12,2-12,3 10,2-10,3

**Notes**

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 RVI 8,8 k

7. Edition

En

Testspec ISO 4113

PES 6 MW 100/320 RS 1016  
RQV 300-1300 MW 25  
Komb.-Nr. 0 403 446 123

supersedes 1.84  
company: RVI  
engine: MIDR 06.02-12  
125 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\frac{3,00-3,10}{(2,95-3,15)}$  mm (from BDC) RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1300	11,1+0,1	8,95-9,15	0,35(0,6)			
300	5,7-5,8	0,95-1,35	0,35(0,55)			
900	11,1+0,1		0,5 (0,7)			
500	9,8-9,9					

Adjust the fuel delivery from each outlet according to the values in

Port closing mark cyl. 10,5 ° after port closing

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever mm 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min ①a ②a	Degree of deflection of control lever mm 4	rev/min 5	Control rod travel mm ④	Degree of deflection of control lever mm 7	rev/min 8	Control rod travel mm ③	rev/min 10	mm 11
max.	1300 1650	15,2-17,8 0 -1,0				340-600	200 300	max. 7,5 5,8-5,9		
ca. 62	10,1 3,9	1370-1380 1495-1525				③a				

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b ④a	Fuel delivery characteristics high idle speed ⑤a ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel Control rod travel mm ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	mm 9
LDA 1300	0,67 bar 89,5-91,5 (87,5-93,5)	1355-1365*	LDA 900	0,67 bar 85,0-89,0 (83,0-91,0)	100	95,0-105,0 (90,0-110,0)		
			LDA 500	0 bar 56,0-58,0 (54,0-60,0)	300	9,5-13,5 (7,0-16,0)		
					100-230(80-250)			

Checking values in brackets

\* 1 mm less control rod travel than col. 2

12.85

## D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
 increasing

Pump/governor	Setting	Measurement	Control rod travel	diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)	
RS 1016 mit MW 25	0,23	0,67 0 0,20	10,7-10,9 11,1-11,2 9,8-9,9 10,2-10,3	

### Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps ① and Governors

Test Specifications

PES 6 MW 100/320 RS 1016  
RQV 300 - 1300 MW 25-1  
Komb. 0 403 446 122  
1 - 5 - 3 - 6 - 2 - 4 je 60°

supersedes 8.84  
company RVI  
engine MIDR 06.02-12  
125 kW (170 PS)

\* Start-of-delivery mark 8° after start of delivery with control-rod travel 10.5 mm  
All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke (2,95-3,15) mm (from BDC) RW = 9,0-12,0 mm  
3,00-3,10

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1400	11,1+0,1	9,1-9,3	0,35(0,6)			
300	6,2-6,3	0,95-1,35	0,35(0,55)			
900	11,1+0,1		0,5(0,7)			
500	9,8-9,9					

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1400 1650	15,2-17,8 0-1,0				ca. 12	200 300	max. 7,5 5,8-5,9		
ca. 62	10,1 4,0	1455-1465 1575-1605					490-550 = 2,0			

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 1400	0,5 bar 91,5-93,5 (89,5-95,5)	1455-1465*	LDA 900	0,5 bar 87,5-91,5 (85,5-93,5)	100	91,5-93,5 (89,5-95,5)		
			LDA 500	0 bar 59,0-61,0 (57,0-63,0)	300	9,5-13,5 (7,0-16,0)		
					100-230(80-250)			

Checking values in brackets

\* 1 mm less control rod travel than col. 2

# D. Adjustment Test for Manifold Pressure Compensator

RVI 8,8 k2 -2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
 increasing

**Testoil-ISO 4113**

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
RS 1016 with MW 25-1	0,23	0,5 0,2 0	10,7-10,9 11,1-11,2 10,2-10,3 9,7- 9,8

**Notes**

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps ① and Governors

Testoil-ISO 4113

PES 6 MW 100/320 RS 1016  
RQV 300-1300 MW 25-5  
U 403 44b 165

supersedes -  
company: RVI  
engine: MIDR 06.02-12F  
125 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $3,00-3,10$   
(2,95-3,15) mm (from BDC) RW = 9-12 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1300	11,1+0,1	8,9-9,1	0,35(0,6)			
300 900 500	5,7-5,8 11,1+0,1 9,9-10,0	0,9-1,3	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1300 1650	15,2-17,8 0-1,0				ca.13	200 300	min.3,6 5,9-6,0		
ca.04	10,1 4,0	1370-1380 1495-1525				340-600				

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1300	0,66 bar 89,5-91,5 (87,5-93,5)	1370-1380*	LDA 900  LDA 500	0,65 bar 86,5-90,5 (84,5-92,5) 0 bar 56,0-58,0 (54,0-60,0)	100  300  100-230(80-250)	95,0-105,0 (92,0-108,0) 9,5-13,5 (7,0-16,0)		

Checking values in brackets

\* 1 mm less control rod travel than col. 2

# D. Adjustment Test for Manifold Pressure Compensator

RVI 8,8k5

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
 increasing

**Testoil-ISO 4113**

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
RS 1016 with MW 25-5	0,20	0,23 0 0,66	10,2-10,3 10,7-10,9 9,9-10,1 11,1-11,2

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Start-of-delivery mark 8" after start of delivery

# Test Specifications Fuel Injection Pumps ② and Governors

En

Test ISO 4113

PES 6 MW 100/320 RS 1016  
RQ 750 MW 42  
0 403 446 130  
1 - 5 - 3 - 6 - 2 - 4  
0 -60 -120-180-240-300 ± 0,50(0,75)

supersedes 10.84  
company: RVI  
engine: MIDR 06.02-12  
100 kW (136 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\overset{3,00-3,10}{(2,95-3,15)}$  mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	14,5+0,1	13,35-13,55	0,35(0,6)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Checking of slider PRG check rev/min 1		Control rod travel mm 2		Setting point rev/min 3		Control rod travel mm 4		Test specifications rev/min 5		rev/min 6		Setting point rev/min 7		Control rod travel mm 8		Test specifications rev/min 9		Control rod travel mm 10		rev/min 11		Control rod travel mm 12	
								13,5 4,0 0-1,0	750-755 795-805 850														

Torque-control travel on flyweight assembly dimension a =  mm Speed regulation: At  1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		cm <sup>3</sup> /-1000 strokes 2		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		cm <sup>3</sup> /-1000 strokes 5		Starting fuel delivery Idle speed rev/min 6		cm <sup>3</sup> /1000 strokes / mm Control rod travel 7	
700		133,5-135,5 (131,5-137,5)								100		80,0-90,0 (77,0-93,0)	

Checking values in brackets



# Test Specifications Fuel Injection Pumps ① and Governors

PES 4 MW 100/320 RS 1102  
U 403 444 107  
1 - 3 - 4 - 2  
0-90-180-270 ± 0,50 (0,75)

RQV 300-1100 MW 39-5

supersedes 4.85  
company: Volvo  
engine: D 45  
85 kW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke <sup>2,80-2,90</sup>  
(2,75-2,95) mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,7+0,1	11,1-11,3	0,35(0,6)			
300	6,4-6,5	1,3-1,7	0,35(0,55)			
1000	12,7+0,1		0,55(0,7)			

Adjust the fuel delivery from each outlet according to the values in .

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1150 1350	15,2-17,8 0-1,0				ca. 14	300 100	6,4-6,5 min.8,0		
ca. 48	11,7 4,0	1140-1150 1210-1240				320-450				

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5b	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
700	111,0-113,0 (109,0-115,0)	1140-1150*	1000	112,0-116,0 (110,0-118,0)	100	130,0-140,0 (127,0-143,0)		
					300	13,0-17,0 (10,5-19,5)		
					100-220(80-250)			

Checking values in brackets

\* 1 mm less control rod travel than col. 2

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 4,5 d

En 3. Edition

PES 4 MW 100/320 RS 1102  
RQV 300-1200 MW 39-2  
0 403 444 104

supersedes 4.85  
company: Volvo  
engine: TD 45  
82,5 kW (112 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\frac{2,80-2,90}{(2,75-2,95)}$  mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,2+0,1	10,0-10,2	0,35(0,6)			
300	6,5-6,6	1,3-1,7	0,35(0,55)			
1000	12,2+0,1		0,55(0,7)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③	rev/min 10	mm 11
max.	1200 1450	15,2-17,8 0-1,0				ca. 12	100 300	min. 8,1 6,5-6,6		
ca. 48	11,2 4,0	1240-1250 1290-1320				③a	400-550 = 2,0			

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min ④a	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
700	100,0-102,0 (98,0-104,0)	1240-1250*	1000	101,0-105,0 (99,0-107,0)	100 300	130,0-140,0 (127,0-143,0) 13,0-17,0 (10,5-19,5)		
					100-220(80-250)			

Checking values in brackets

\* 1 mm less control rod travel than col. 2

12.85

**BOSCH**

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# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 RVI 5,5 a

4. Edition

En

PES 6 MW 80/320 RS 1104  
RSV 300-1450 MW 2/801

U 403 476 013

supersedes 7.84  
company RVI  
engine MD 060212  
97,8 kW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\frac{1,75-1,85}{(1,70-1,90)}$  mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (torque control valve) mm
1	2	3	4	2	3	6
900	10,4+0,1	5,05-5,25	0,25(0,4)			
300	4,7-4,9	0,85-1,15	0,2(0,35)			
1450	9,4-9,5		0,35(0,45)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0 X = 4,0				ca.20	300	4,8	900	10,4-10,5
							250	max.6,4	1050	10,0-10,2
ca.58		8,4 = 1515-1525							1450	9,4-9,5
2a		3,9 = 1540-1570							1150	9,6-9,8
		0-1,0 = 1650								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note changed to rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
rev/min 1	cm <sup>3</sup> /1000 strokes 2		rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
900	50,5-52,5 (49,5-53,5)	1515-1525*	1425	54,0-56,0 (52,0-58,0)	100	75-85 (70-90) RW = 15 mm		
					300	8,5-11,5 (7,0-13,0)		

Checking values in brackets

\* 1 mm less control rod travel than col 2

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12.85

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 VOL 6,0 r 2

2. Edition

En

PES 6 MW 100/320 RS 1104  
RSV 650-750 MW 4/311-2

0 403 476 018

superseded by 9.83  
Volvo  
company TD 60 DG  
engine 86 kW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke 2,80-2,90 mm (from BDC) RW = 9,0-12,0 mm  
(2,75-2,95)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (torque control valve) mm
1	2	3	4	2	3	6
700	11,1+0,1	9,05-9,25	0,35(0,6)			
650	4,5-4,6	1,7-2,1	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

① Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			④ Control lever deflection in degrees 7	Lower rated speed		③ Torque control	
	mm	mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
2	3					8	9	10	11	
loose	800	0,3-1,0				ca. 34	650	4,0		
ca. 40 ②a	x = 3,0						650	4,5-4,6		
	750-760 = 10,1 760-790 = 4,0 930 = 0,3-1,7							690-750 = 2,0		

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp 40°C (104°F)		⑥ Rotational-speed limit Note changed to ) rev/min	③a Fuel delivery characteristics		Starting fuel delivery Idle		④a Idle stop	
rev/min	cm <sup>3</sup> /1000 strokes		rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
700	90,5-92,5 (88,5-94,5)				100	130-140 (127-143)		
					650	17,0-21,0 (15,5-22,5)		

Checking values in brackets

\* 1 mm less control rod travel than col 2

12.85

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# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7a12  
2. Edition

En

Test ISO 4113

PES 6 MW 100/720 RS 1101  
RQV 300-1300 MW 34  
0 403 446 124  
1 - 5 - 3 - 6 - 2 - 4  
0 - 60 - 120 - 180 - 240 - 300 + 0,50 (0,75)

supersede MB 8,7m vom 8.85  
company: Daimler-Benz  
engine: OM 362 LA  
141 kW

Fuel injection test tubing 1 680 750 008  
All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $3,20-3,30$  mm (from BDC) RW = 9,0 - 12,0 mm  
(3,15-3,35)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1300	11,9+0,1	9,45-9,65	0,35(0,6)			
300	6,0-6,1	1,05-1,45	0,35(0,55)			
800	11,9+0,1		0,5 (0,7)			
500	10,2+0,1		0,35 (0,5)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1300 1600	15,2-17,8 0,1-1,0				ca.20	100 300 460-520=2,0	min.7,6 6,0-6,1		
ca.61	10,9 4,0	1340-1360 1460-1490								

Torque control travel a =  mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 1300	0,7 bar 94,5-96,5 (92,5-98,5)	1340-1350*	LDA 800 500	0,7 bar 89,5-93,5 (87,5-95,5) 54,5-56,5 (52,5-58,5)	100 300 100-230 (80-250)	80,0-90,0 (77,0-93,0) 10,5-14,5 (8,0-17,0)		

Checking values in brackets

\* 1 mm less control rod travel than col 2

# D. Adjustment Test for Manifold Pressure Compensator

MB 5,7a 12

Test at n = rev/min decreasing pressure - in bar gauge pressure  
 increasing

Testoil-ISO 4113

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
RS 1101 with RQV ..MW 34	0,1	0,12 0 0,70	10,4-10,5 10,9-11,1 10,2-10,3 11,9-12,0

Notes:

(1) when n =

rev/min and  
gauge pressure =

bar (= maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7a11  
2. Edition

En

Test-Spezifikationen

PES 6 MW 100/720 RS 1101  
RNV 300-1300 MW 44  
0 403 446 134

supersedes MB 8,7 p  
company: Daimler-Benz  
engine: OM 362 LA  
141,0 kW

1 - 5 - 3 - 6 - 2 - 4  
0 - 60 - 120 - 180 - 240 - 300 ± 0,50 (0,75)

Fuel injection test tubing 1 680 750 008

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke 3,20-3,30 mm (from BDC) RW = 9,0 - 12,0 mm  
(3,15-3,35)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
300	11,9+0,1	9,35-9,55	0,35 (0,6)			
300	6,0-6,1	1,05-1,45	0,35 (0,55)			
800	11,9+0,1		0,50 (0,7)			
500	10,0+0,1		0,35 (0,6)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1330 1600	15,2-17,8 0,1-1,0				ca. 11	100 300 520-580=2,0	min.7,6 6,0-6,1		
ca. 64	10,9 4,0	1340-1350 1435-1465								

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min	cm <sup>3</sup> /1000 strokes	rev/min ④a	rev/min	cm <sup>3</sup> /1000 strokes ⑤b	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 1300	0,7 bar 93,5-95,5 (91,5-97,5)	1340-1350*	LDA 800	0,7 bar 87,5-89,5 (84,5-92,5)	100 300	80,0-90,0 (77,0-93,0) 10,5-14,5 (8,0-17,0)		
			LDA 500	0 bar 51,5-53,5 (49,5-55,5)	100-250 (80-250)			

Checking values in brackets

\* 1 mm less control rod travel than col. 2

# D. Adjustment Test for Manifold Pressure Compensator

MB 5,7a 11

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
 increasing

**Testoil-ISO 4113**

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
RS 1101 with RQV .. MW 44	0,1	0,12 0 0,7	10,4-10,5 10,9-11,1 10,0-10,1 11,9-12,0

Notes.

(1) when n =

rev/min and  
gauge pressure =

bar (= maximum full-load control rod travel)



# Test Specifications Fuel Injection Pumps ① and Governors

Test-Spec. 1110

PES 8 MW 100/720 RS 1110  
RQV 500-1200 MW 29  
U 403 448 120

supersedes 4.85  
company: Perkins  
engine TV 8.640 GR  
185 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $3,00-3,10$  mm (from BDC) RW =  $9,0-12,0$  mm  
( $2,95-3,15$ )

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1180	13,8+0,1	9,9-10,1	0,35(0,6)			
500 800	7,3-7,4 13,8+0,1	0,95-1,35	0,35(0,55) 0,5(0,7)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1200 1400	15,2-17,8 0,1-1,0	-	-	-	ca. 15	500 100	7,3-7,4 min. 100		
ca. 64	12,8 4,0	1220-1225 1255-1260								

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
1180	99,0-101,0 (97,0-103,0)		800	93,0-97,0 (91,0-99,0)	100	19,0-21,0 mm RW 90,0-100,0 (87,0-103,0)		
					500	9,5-13,5 (7,0-16,0)		
					100-400	(80-420)		

Checking values in brackets

\* 1 mm less control rod travel than col. 2

Port closing and TDC markings

Comb. - No.

... 120

° camshaft between port-closing  
and TDC

at control-rod travel 10,5 mm

15°

# Test Specifications Fuel Injection Pumps ① and Governors

En

PES 6 MW 100/720 RS 1114 /RS1114-1  
RQV 300-1300 MW 48  
0 403 446 145  
Fuel injection test tubing 1 680 750 008

supersedes -  
company: Daimler-Benz  
engine: OM 366 A  
125 kW

TESTING

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $3,70-3,80$  mm (from BDC) RW = 9,0 - 12,0 mm  
(3,65-3,85)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1300	11,0+0,1	8,2-8,4	0,35 (0,6)			
300	7,8-7,9	1,0-1,4	0,35 (0,5)			
700	12,1+0,1		0,5 (0,7)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1330	15,2-17,8				ca. 18	100	min. 9,4		
	1520	0-1,0					300	7,8-7,9		
ca. 52	10,0 4,0	1340-1350 1430-1460					330-600			

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ④a	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
1300	82,0-84,0 (80,0-86,0)	1340-1350*	700	83,0-85,0 (81,0-87,0)	100	19-21 mm RW 80,0-90,0 (77,0-93,0) 10,0-14,0 (9,0-15,0) 100-230 (80-250)	1300	11,0+0,1
							700	12,1+0,1
							720	12,1+0,1
							800	11,8+0,2
							900	11,4+0,3

Checking values in brackets

\* 1 mm less control rod travel than col. 2



# D. Adjustment Test for Manifold Pressure Compensator

MB 6,0 d 4

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
 increasing

Testoil-ISO 4113

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
RS 1115 with RQV..MW 50	0,18	0,21 0 0,70	10,8-10,9 11,4-11,7 10,1-10,2 11,9-12,0

Notes:

(1) when n =

rev/min and  
gauge pressure =

bar (= maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 4,5 K

En 2. Edition

TEST SPECIFICATIONS

PES 4 MW 100/320 RS 1116  
RQV 300-1100 MW 51  
0 403 444 108  
1-3-4-2  
0-90-180-270 ± 0,50 (0,75)

supersedes 10.84  
company: Volvo-BM  
engine: TD 45-EM  
85 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke <sup>3,20-3,30</sup>  
(3,15-3,35) mm (from BDC) RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,5+0,1	11,6-11,8	0,35(0,6)			
300	5,8-5,9	1,3-1,7	0,35(0,55)			
1000	12,5+0,1		0,55			
700	10,5+0,1					

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1100 1350	15,2-17,8 0-1,0				ca.12	300 100	5,8-5,9 min.8,0		
ca.52	11,5 4,0	1140-1150 1200-1230					330-450			

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 700	0,75 bar 116,0-118,0 (114,0-120,0)	1140-1150*	LDA 1000	0,75 bar 117,0-121,0 (114,5-123,5)	100	150,0-160,0 (147,0-163,0)		
			LDA 700	0 bar 79,0-81,0 (76,5-83,5)	300	13,0-17,0 (10,5-19,5)		
					100-220(80-250)			

Checking values in brackets

\* 1 mm less control rod travel than col. 2

# D. Adjustment Test for Manifold Pressure Compensator

VOL 4,5k

Test at n = 700 rev/min decreasing pressure - in bar gauge pressure  
 increasing

Testoil-ISO 4113

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution difference mm (1)
RS 1116 with MW 51	0,26	0,52 0 0,75	10,6-10,7 12,4-12,6 10,5-10,6 12,5-12,6

Notes:

(1) when n =

rev/min and  
gauge pressure =

bar (= maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps ① and Governors

En

Test ISO 4113

PES 6 MW 100/320 RS 1119  
RQV 350-1050 MW 54-1  
0 403 446 157

supersedes  
company Volvo  
engine: TD 61  
111 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\frac{3,0-3,10}{(2,95-3,15)}$  mm (from BDC)  $9-12$  mm RW

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,3+0,1	10,8-11,0	0,35 (0,6)			
300	6,3-6,4	1,6-2,0	0,35 (0,5)			
1000	12,3+0,1		0,35 (0,7)			
700	10,9+0,1					

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1120 1280	15,2-17,8 0,1-1,0				ca. 16	350 100	6,3-6,4 min. 7,8		
ca. 45	11,0 4,0	1090-1100 1150-1180					370-450			

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5b	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 700	0,7 bar 108,0-110,0 (106,0-112,0)	1090-1100*	LDA 1000	0,7 bar 109,0-113,0 (107,0-115,0)	100	19-21 RW 140-160 (137-163)		
			LDA 700	0 bar 82,0-84,0 (80,0-86,0)	300	16,0-20,0 (14,0-22,0)		

Checking values in brackets

\* 1 mm less control rod travel than col. 2



# D. Adjustment Test for Manifold Pressure Compensator

PEN 6,1 i

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
 increasing

Testoil-ISO 4113

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
RS 1119 with MW 54-1	0,30	0,45 0 0,70	11,1-11,2 12,0-12,3 10,9-11,0 12,3-12,4

Notes.

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps (1A) and Governors

# 40

WPP 001/4 PEN 6,1 a

1. Edition

En

Testoil-ISO 4113

PES 6 MW 100/320 RS 1119-2  
RSV 325...1250 MW 0 A 308  
0 403 476 032

supersedes  
company **Volvo-Penta**  
engine **TD 61 AW**  
**132 kW**

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\begin{matrix} 3,1-3,2 \\ (3,05-3,15) \end{matrix}$  mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	10,8-10,9	8,45-8,65	0,35(0,6)			
325	6,1-6,2	1,2-1,6	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control rev/min 10	Control rod travel mm 11
	mm 2	mm rev/min 3	4	5	6		rev/min 8	mm 9		
loose	800	0,3-1,0				ca. 22	325	5,5-5,6		
ca. 49 2a	1290-1300 = 9,8 1340-1370 = 4,0 1450 = 0,3-1,7						325 100	6,0-6,1 min. 19		

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note changed to 1 rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
rev/min 1	cm <sup>3</sup> /1000 strokes 2		rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
1000	84,5-86,5 (83,5-89,5)				100	160,0-180,0 (157,0-183,0)		
					325	12,0-16,0 (9,5-18,5)		

Checking values in brackets

\* 1 mm less control rod travel than col 2

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10.85

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 PEN 6,0 d

1. Edition

En

Testoil-ISO 4113

PES 6 MW 100/320 RS 1119-2  
RSV 325-1250 MW 2A 308  
0 403 476 033

supersedes...  
company Volvo-Penta  
engine TD 61 APP  
147 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke <sup>2,5-2,6</sup> (2,45-2,65) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	10,8-10,9	8,5-8,7	0,35 (0,6)			
325	6,1-6,2	1,2-1,6	0,35 (0,55)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

① Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed			④ Control lever deflection in degrees 7	Lower rated speed		③ Torque control	
			4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0								
ca. 22 ②a		1290-1300 = 9,8 1340-1370 = 4,0 1450=0,3-1,7								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp 40°C (104°F)		⑥ Rotational-speed limit Note changed to ) rev/min 3	③a Fuel delivery characteristics		Starting fuel delivery Idle		④a Idle stop	
rev/min 1	cm <sup>3</sup> /1000 strokes 2		rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
1000	85,0-87,0 (83,0-89,0)					100	160,0-180,0 (157,0-183,0)	
						325	12,0-16,0 (9,5-18,5)	

Checking values in brackets

\* 1 mm less control rod travel than col 2

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# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 PEN 6,1 c

1. Edition

En

Testo-ISO 4113

PES 6 MW 100/320 RS 1119-2  
RSV 300-1050 MW 4 A 308-2  
O 403 476 031

superseded by Volvo-Penta  
company TD 61 ACE  
engine 112 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke <sup>2,5-2,6</sup> (2,45-2,65) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	10,8-10,9	8,5-8,7	0,35 (0,6)			
300	6,1-6,2	1,2-1,6	0,35 (0,55)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0				ca. 25	300	5,6-5,7		
ca. 61							300	6,1-6,2		
2a							100	min. 19		

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note changed to ) rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery 5 Idle		4a Idle stop	
rev/min 1	cm <sup>3</sup> /1000 strokes 2		rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
1000	85,0-87,0 (83,0-89,0)					100	160,0-180,0 (157,0-183,0)	
						300	12,0-16,0 (9,5-18,5)	

Checking values in brackets

\* 1 mm less control rod travel than col 2

10.85

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H20

H20

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 1/4 PEN 6,1 b

1. Edition

En

Testoil-ISO 4113

PES 6 MW 100/320 RS 1119-2  
RSV 650-750 MW 4 / 311-1  
0 403 476 034

supersedes  
company Volvo-Penta  
engine TD 61 G  
83 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\begin{matrix} 2,5-2,6 \\ (2,45-2,65) \end{matrix}$  mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	11,5-11,6	8,9-9,1	0,35(0,6)			
650	6,1-6,2	1,7-2,1	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Control lever deflection in degrees			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11	
loose	800	0,3-1,0				ca. 34	650	5,6-5,7	350	12,0-12,1
							100	min. 19	500	11,5-11,6
ca. 40	750-760 = 10,5 765-795 = 4,0 950 = 0,3-1,7									

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to ) rev/min		rev/min cm <sup>3</sup> /1000 strokes		rev/min cm <sup>3</sup> /1000 strokes		rev/min Control rod travel mm	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	3	4	5	6	7	8	9	
700	89,0-91,0 (87,0-93,0)					100	160,0-180,0 (157,0-183,0)		
						650	17,0-21,0 (15,5-22,5)		

Checking values in brackets

\* 1 mm less control rod travel than col 2

10.85

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H24

# Test Specifications Fuel Injection Pumps (1A) and Governors

**40**  
WPP 001/4 PEN 6,1 e

1. Edition

En

Toshiba 4119

PES 6 MW 100/320 RS 1119-2  
RSV 650-750 MW 4/311-2  
0 403 476 035

supersedes—  
company Volvo -Penta  
engine TID 61 AG  
102 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke <sup>2,5-2,6</sup>  
(2,45-2,65) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque control valve) mm 6
700	12,0-12,1	9,3-9,5	0,35(0,6)			
650	6,2-6,3	1,7-2,1	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

① Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel mm 2		Intermediate rated speed 4 5 6			④ Control-lever deflection in degrees 7	Lower rated speed rev/min 8		Control rod travel mm 9		③ Torque control rev/min 10	Control rod travel mm 11
	Control rod travel mm	Control rod travel mm rev/min	rev/min	rev/min	Control rod travel mm							
loose	800	0,3-1,0				ca. 24	650	6,2-6,3				
ca. 41,5 ②a	750-760 = 11,0 765-795 = 4,0 950 = 0,3-1,7											

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp 40°C (104°F) rev/min 1		cm <sup>3</sup> /1000 strokes 2		⑥ Rotational-speed limit Note changed to ) rev/min 3	③a Fuel delivery characteristics rev/min 4		cm <sup>3</sup> /1000 strokes 5		Starting fuel delivery Idle rev/min 6		cm <sup>3</sup> /1000 strokes 7		④a Idle stop rev/min 8	Control rod travel mm 9
700	93,0-95,0 (91,0-97,0)								100	160,0-180,0 (157,0-183,0)				
								650	17,0-21,0 (15,5-22,5)					

Checking values in brackets

\* 1 mm less control rod travel than col 2

10.85

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H22

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 PEN 6,1p1

1. Edition

En

Test ISO 4172

PES 6 MW 100/320 RS 1119-2  
RSV 325-1400 MW 2 A 314-1  
0 403 476 038

supersedes  
company Volvo-Penta  
engine TD 61 A  
147 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke 2,50-2,60  
(2,45-2,65) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	10,9+0,1	8,7-8,9	0,35 (0,6)			
325	6,0-6,1	1,2-1,6	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0				ca. 17	325	5.5-5.6		
ca. 51		1440-1450=10,0 1505-1535= 4,0 1600=0,3-1,7					325 100	6,0-6,1 min. 19		
2a										

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40 C (104° F)		6 Rotational-speed limit Note changed to 1 rev/min		3a Fuel delivery characteristics		Starting fuel delivery Idle 5		4a Idle stop	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9	
LDA 1000	0,9 bar 87,0-89,0 (85,0-91,0)		LDA 500	0 bar 49,0-51,0 (47,0-53,0)	100	140-160 (137-163)			
					325	12,0-16,0 (9,5-18,5)			

Checking values in brackets

\* 1 mm less control rod travel than col 2

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11.85

H23

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# D. Adjustment Test for Manifold Pressure Compensator

PEN 6,1p1

Test at n = 550 rev/min decreasing pressure - in bar gauge pressure  
 increasing

Testoil-ISO 4113

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution , difference mm (1)
RS 119-2 with MW 2 A 314-1	0	0,9 0,22 0,33	9,4-9,5 10,9-11,0 9,6-9,7 9,8-9,9

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)



# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 6,0 d 1

1. Edition

En

Testo-ISO 4119

PES 6 MW 100/720 RS 1124  
RSV 350-1300 MW 1 A 316  
D 403 476 027  
1-5-3-6-2-4 je 60°

supersedes  
Daimler-Benz  
company OM 366 A  
engine 125 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $3,70-3,80$  mm (from BDC)  $RW = 9,0 - 12,0$  mm  
( $3,65-3,85$ )

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1300	10,7-10,8	8,0-8,2	0,35(0,6)			
350	7,2-7,4	0,8-1,2	0,35(0,5)			
1700			0,5 (0,7)			
Fuel injection test tubing 1 680 750 008						

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever mm	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees	Lower rated speed		3 Torque control rev/min	Control rod travel mm
	mm	rev/min	4	5	6		rev/min	Control rod travel mm		
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0				ca. 16	350	7,3	970	10,8-10,9
ca. 58	$x = 4,0$						350	7,2-7,4	850	11,7-11,9
	1340-1350 = 9,7						445-505	2,0	750	12,3-12,4
2a	1355-1385 = 4,0									
	1400-1430 = 4,0									
	1450=0,3-1,7									

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note changed to ) rev/min	3a Fuel delivery characteristics		Starting fuel delivery 5 Idle		4a Idle stop	
rev/min	cm <sup>3</sup> /1000 strokes		rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1300	80,0-82,0 (78,0-84,0)		700	80,0-82,0 (78,0-84,0)	100	80,0-90,0 (77,0-93,0)		0,5-1,0 mm before stop
			825	80,5-82,5 (77,5-85,5)	350	8,0-12,0 (7,0-14,0)		

Checking values in brackets

\* 1 mm less control rod travel than col 2

11.85

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J1

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# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 6,0 d

1. Edition

En

Testoil-ISO 4113

PES 6 MW 100/720 RS 1124  
RSV 350-1200 MW 1 A 316-1  
0 403 476 029

supersedes  
company Daimler-Benz  
engine OM 366 A  
110 kW

1-5-3-6-2-4 je 60°

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\frac{3,70-3,80}{(3,65-3,85)}$  mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1200	9,8-9,9	7,6-7,8	0,35(0,6)			
350	6,8-6,9	1,0-1,4	0,35(0,5)			
700	10,4-10,5		0,5 (0,7)			
900	10,1-10,3					

Fuel injection test tubing 1 680 750 008

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever	Control rod travel		Intermediate rated speed			4 Control lever deflection in degrees	Lower rated speed		3 Torque control	
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0				ca. 16	350	6,8-6,9	1150	9,8-9,9
		x = 4,0					445-505	2,0	750	10,8-10,9
ca. 56		1240-1250 = 8,8							950	10,4-10,6
2a		1255-1285 = 4,0								
		1300-1330 = 4,0								
		1360=0,3-1,7								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note changed to ) rev/min	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop Control rod travel mm	
rev/min	cm <sup>3</sup> /1000 strokes		rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes		
1	2	3	4	5	6	7	8	9
1200	76,0-78,0 (74,0-80,0)		700	72,0-74,0 (70,0-76,0)	100	80,0-90,0 (77,0-93,0)		0,5-1,0 mm
			900	76,0-78,0 (73,0-81,0)	350	10,0-14,0 (9,0-15,0)		before stop

Checking values in brackets

\* 1 mm less control rod travel than col 2

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11.85

J2

12

# Test Specifications Fuel Injection Pumps (1A) and Governors

# 40

WPP 001/4, MB 5,7 a 13

1. Edition

En

PES 6 MW 100/720 RS 1125-1  
RSV 600-1300 MW OA 320  
0 403 476 049  
1-5-3-6-2-4 je 60°  
Fuel injection test tubing 1 680 750 008  
All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

supersedes\_  
company Daimler-Benz  
engine OM 362 LA  
134 kW

## A. Fuel Injection Pump Settings

Port closing at prestroke <sup>3,20-3,30</sup> (3,15-3,35) mm (from BDC) RW 9,0 - 12,0 mm

**Testoil-ISO 4113**

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1280	11,8-11,9	9,2-9,4	0,35(0,6)			
600 800	5,6- 5,7 11,8-11,9	1,0-1,4	0,35(0,5) 0,5 (0,7)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

① Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			④ Control-lever deflection in degrees 7	Lower rated speed		③ Torque control rev/min 10	Control rod travel mm 11
	mm 2	mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9		
loose	800	0,3-1,0				ca.16	600	5,6-5,7		
ca.59							100	min. 19		
②a		1330-1340=10,8 1400-1430= 4,0 1560= 0,3- 1,7								

The numbers denote the sequence of the tests Set idle-speed auxiliary spring at 2 mm control-rod travel.

## C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp. 40°C (104°F)		⑥ Rotational-speed limitat. Note: changed to ..) rev/min 3	③a Fuel delivery characteristics		Starting fuel delivery ⑤ Idle		④a Idle stop	
rev/min 1	cm <sup>3</sup> /1000 strokes 2		rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
1280	92,0-94,0 (90,0-96,0)		800	91,0-95,0 (89,0-97,0)	100	80,0-90,0 (77,0-93,0)		
					600	10,0-14,0 ( 8,0-16,0)		

Note: Test elec. unlocked starting fuel delivery (EES) with 24 Volts

Checking values in brackets

\* 1 mm less control rod travel than col. 2

11.85

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②

# Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MB 1,7p1

1. Edition

En

Testoil-ISO 4113

PE 6 MW 100/720 RS 1126  
RQ 300/1250 MW 12-1  
O 403 546 006  
1-5-3-6-2-4 je 60°

supersedes -  
company: Daimler-Benz  
engine: OM 360 A  
155 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\frac{3,80-3,90}{(3,75-3,95)}$  mm (from BDC)  $RW = 9-12$  mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	12,4+0,1	9,95-10,15	0,35(0,6)			
300	8,3-8,4	1,35-1,75	0,35(0,55)			
750	12,4+0,1					

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Checking of slider PRG check rev/min 1		Control rod travel mm 2		Full-load speed regulation Setting point rev/min 3		Control rod travel mm 4		Test specifications rev/min 5		rev/min 6		Idle speed regulation Setting point rev/min 7		Control rod travel mm 8		Test specifications rev/min 9		Control rod travel mm 10		Torque control rev/min 11		Control rod travel mm 12	
650	13,1-13,9	VH 46°	650	13,5	11,4	1295-1310	4,0	1395-1425	1550			300	8,3-8,4	220	min.10,4	395-435	= 2,0						

Torque-control travel on flyweight assembly dimension a = mm Speed regulation At 1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F) rev/min 1		cm <sup>3</sup> /-1000 strokes 2		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		cm <sup>3</sup> /-1000 strokes 5		Starting fuel delivery Idle speed rev/min 6		cm <sup>3</sup> /1000 strokes / mm Control rod travel 7	
1250	99,5-101,5 (97,5-103,5)	500	750	93,0-97,0 (91,0-99,0)	100	125,0-135,0 (122,0-138,0)	300	13,5-17,5 (11,0-20,0)					

Checking values in brackets

11.85



J4

14

# Test Specifications Fuel Injection Pumps ① and Governors

En

Test Specifications  
 Fuel Injection Pumps  
 and Governors

PES 4 MW 100/720 RS 1127  
 RQV 300-1300 MW 48-1  
 O 403 444 110  
 1-3-4-2  
 0-90-180-270 ± 0,50 (0,75)

supersedes -  
 company: Daimler-Benz  
 engine: OM 364 A  
 85 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Fuel injection test tubing 1 680 750 008

Port closing at prestroke  $3,70-3,80$   
 $(3,65-3,85)$  mm (from BDC) RW = 9 - 12 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1300	11,7+0,1	8,3-8,5	0,35 (0,6)			
300	7,9-8,0	1,0-1,4	0,35 (0,5)			
750	12,0+0,2		0,5 (0,7)			
600	12,5+0,1		0,5(0,7)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③	rev/min 10	mm 11
max.	1330 1550	15,2-17,8 0 - 1,0				ca. 21	100 300	min. 9,5 7,9-8,0		
ca. 54	10,7 4,0	1340-1350 1440-1470				③a	330-600			

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5b	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
1300	83,0-85,0 (81,0-87,0)	1340-1350 *	750	80,5-83,5 (78,0-86,0)	100	80,0-90,0 (77,0-93,0)	1300	11,7+0 1
			600	82,0-84,0 (80,0-86,0)	300	10,0-14,0 (8,0-16,0)	600	12,5+0 1
					100-230	(80-250)	750	12,5+0 3
							950	11,7+0 2
							620	12,5+0 1

Checking values in brackets

\* 1 mm less control rod travel than col. 2

11.85



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J5

J5



# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 6,0d11

1. Edition

En

Testspec ISO 15722

PES 6 MW 100/720 RS 1131  
RQV 300-1300 MW 67  
0 403 446 168

1-5-3-6-2-4 je 60°  
Fuel injection test tubing 1 680 750 008

supersedes -  
company: Daimler-Benz  
engine: OM 366 LA  
150 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\begin{matrix} 3,70-3,80 \\ (3,65-3,85) \end{matrix}$  mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1300	11,9+0,1	9,3-9,5	0,35(0,6)			
300	6,1-6,2	1,0-1,4	0,35(0,55)			
600	11,9+0,1		0,5 (0,7)			
500	10,1+0,1					

Adjust the fuel delivery from each outlet according to the values in .

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1340 1550	15,2-17,8 0,0-1,0				ca. 15	100 300	min.7,6 6,1-6,2		
ca. 52	10,9 4,0	1340-1350 1440-1470				350-550				

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ④a	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1300	0,7 bar 93,0-95,0 (91,0-97,0)	1340-1350*	LDA 600	0,7 bar 85,0-89,0 (83,0-91,0)	100	80,0-90,0 (77,0-93,0)		
			LDA 500	0 bar 52,0-54,0 (50,0-56,0)	300	10,0-14,0 (7,5-16,5)		

Checking values in brackets

\* 1 mm less control rod travel than col. 2

# D. Adjustment Test for Manifold Pressure Compensator

MB 5,0 d 11

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
increasing

Testoil-ISO 4113

Pump/governor	Setting	Measurement		Control rod travel	diminution difference
	Gauge pressure = bar	Gauge pressure = bar	bar	mm	(1)
RS 1131 with MW 67	0,37		0,47 0 0,70		10,5-10,6 11,4-11,7 10,1-10,2 11,9-12,0

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)



# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 PEN 6,1m

1. Edition

En

PES 6 MW 100/320 RS 1132  
RSV 300-1050 MW 4 A 308-2  
0 403 476 043

supersedes -  
company Volvo-Penta  
engine TD 61 ACE  
112 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $2,90-3,00$  mm (from BDC)  
 $(2,85-3,05)$

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre tensioning (torque control valve) mm 6
1000	10,8±0,1	8,5-8,7	0,35 (0,6)			
300	6,1-6,2	1,2-1,6	0,35 (0,55)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

① Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed			④ Control lever deflection in degrees 7	Lower rated speed		③ Torque control rev/min 10	Control rod travel mm 11
			4	5	6		rev/min 8	Control rod travel mm 9		
Loose	800	0,3-1,0				ca. 29	300	5,6-5,7		
ca. 69							300	6,1-6,2		
②a							100	min. 19		
		1090-1100 = 9,8 1140-1170 = 4,0 1250 = 0,3-1,7								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

②b Full load stop Test oil temp 40°C (104°F)		⑥ Rotational speed limit Note changed to ) rev/min 3	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤	④a Idle stop	
rev/min 1	cm <sup>3</sup> /1000 strokes 2		rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7		rev/min 8	Control rod travel mm 9
1000	85,0-87,0 (83,0-89,0)				100	140-160 (137-143)			
					300	12,0-16,0 (9,5-18,5)			

Checking values in brackets

\* 1 mm less control rod travel than col 2

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11.85

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 PEN 6,1p

1. Edition

En

Testo 150

PES 6 MW 100/320 RS 1132  
RSV 325-1400 MW 2 A 314-1  
0 403 476 046  
1-5-3-6-2-4 je 60 °

supersedes  
company Volvo-Penta  
engine TD 61 A  
147 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $2,90-3,00$   
 $(2,85-3,05)$  mm (from BDC) RW 9-12 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	10,9+0,1	8,7-8,9	0,35 (0,6)			
325	6,0-6,1	1,2-1,6	0,35(0,55)			
500	9,5-9,6					

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control lever deflection in degrees 7	Lower rated speed		3 Torque control	
	mm 2	mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0				ca.22	325	5,5- 5,6		
ca.58		1440-1450 = 10,0 1530-1550 = 4,0 1650 = 0,3-1,7					325 100	6,0-6,1 min. 19		

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational speed limit Note changed to ) rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
rev/min 1	cm <sup>3</sup> /1000 strokes 2		rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1000	0,9 bar 87,0-89,0 (85,0-91,0)		LDA 500	0 bar 50,0-52,0 (48,0-54,0)	100	140-160 (137-163)		
					325	12,0-16,0 (9,5-18,5)		

Checking values in brackets

\* 1 mm less control rod travel than col 2

11.85

### D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
 increasing

**Testoil-ISO 4113**

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution difference mm (1)
RS 1132 with MW 2 A 314-1	0	0,22 0,32 0,90	9,5-9,6 9,7-9,8 9,9-10,0 10,9-11,0

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 PEN. 6,1 o

1. Edition

En

Test ISO 4113

PES 6 MW 100/320 RS 1132  
RSV 325-1250 MW 2 A 314-2  
0 403 476 039  
1-5-3-6-2-4 je 60°

supersedes  
company Volvo Penta  
engine TD 61 AW  
132 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\overset{2,90-3,00}{(2,85-3,05)}$  mm (from BDC) RW 9-12 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	11,3±0,1	9,5-9,7	0,35(0,6)			
325	5,6-5,7	1,2-1,6	0,35(0,55)			
700	9,8-9,8					

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
			4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0				ca. 20	325	5,1-5,2		
ca. 50		1290-1300 = 10,3 1360-1390 = 4,0 1450 = 0,3-1,7					325 100	5,6-5,7 min. 19		

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational speed limit Note changed to ) rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery idle 5		4a Idle stop	
rev/min 1	cm <sup>3</sup> /1000 strokes 2		rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 700	0,7 bar 95,0-97,0 (93,0-99,0)		LDA 700	0 bar 68,5-70,5 (66,5-72,5)	100 325	140-160 (137-163) 12,0-16,0 (9,5-18,5)		

Checking values in brackets

\* 1 mm less control rod travel than col 2

11.85

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J12

J12

# D. Adjustment Test for Manifold Pressure Compensator

PEN 6,1 0

Test at n = 700 rev/min decreasing pressure - in bar gauge pressure  
increasing

Testoil-ISO 4113

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
RS 1132 with MW 2 A 314-2	0	0,42 0,30 0,70	9,8-9,9 11,1-11,2 10,2-10,3 11,3-11,4

Notes.

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 PEN 6,11

1. Edition

En

Test Specifications

PES 6 MW 100/320 RS 1135  
RSV 325-1250 MW 2 A 308-3  
0 403 476 048

supersedes -

company **Volvo-Penta**  
engine **TD 61 AW**  
**125 kW**

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $2,90-3,00$  mm (from BDC)  $RW = 9-12$  mm  
( $2,85-3,05$ )

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
800	11,0+0,1	8,5-8,7	0,35 (0,6)			
325 1000	8,7-8,8 11,0+0,1	1,7-2,1	0,35 (0,55) 0,5 (0,7)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever mm 1	Control rod travel mm 2		Intermediate rated speed mm rev/min 3			4 Control-lever deflection in degrees 7	Lower rated speed rev/min 8		3 Torque control rev/min 10		Control rod travel mm 11
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10		
loose	800	0,3-1,0				ca. 24	325	8,7-8,8			
ca. 52							100	min. 19			
2a											

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F) rev/min 1		cm <sup>3</sup> /1000 strokes 2		6 Rotational-speed limit Note changed to ) rev/min 3		3a Fuel delivery characteristics rev/min 4		cm <sup>3</sup> /1000 strokes 5		Starting fuel delivery Idle rev/min 6		cm <sup>3</sup> /1000 strokes 7		5 rev/min 8		4a Idle stop rev/min 8		Control rod travel mm 9	
800		85,0-87,0 (83,0-89,0)				100		87,5-91,5 (85,5-93,5)		100		150-160 (147-163)							
										325		17,0-21,0 (15,0-24,0)							

Checking values in brackets

\* 1 mm less control rod travel than col 2

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# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 PEN 6,1p5  
En 1. Edition

PES 6 MW 100/320 RS 1136  
RQV 350-1100 MW 54-2  
0 403 446 167

supersedes  
company Volvo  
engine TD 61  
111 kW

Test Specifications

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke (2,95-3,15) mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,3+0,1	10,8-11,0	0,35(0,6)			
300	6,3-6,4	1,6-2,0	0,35(0,5)			
1000	12,3+0,1		0,35(0,7)			
700	10,9+0,1					

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1150 1350	15,2-17,8 0-1,0				ca. 16	100 350	min. 7,8 6,3-6,4		
ca. 48	11,0 4,0	1140-1150 1200-1230				370-450				

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 700	0,7 bar 108,0-110,0 (106,0-112,0)	1140-1150*	LDA 1000	0,7 bar 109,0-113,0 (107,0-115,0)	100	140-160 (137-163)		
			LDA 700	0 bar 82,0-84,0 (80,0-86,0)	300	16,0-20,0 (14,0-22,0)		

Checking values in brackets

\* 1 mm less control rod travel than col. 2

# D. Adjustment Test for Manifold Pressure Compensator

PEN 6,1p3

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
 increasing

Testoil-ISO 4113

Pump/governor	Setting	Measurement	Control rod travel- diminution , difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
RS 1136 with MW 54-2	0,3	0,45 0 0,70	11,1-11,2 12,0-12,3 10,9-11,0 12,3-12,4

**Notes**

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)



# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 FIA 13,8 u

1. Edition

En

Testoil-ISO 4113

PE 6 P 120 A 720 RS 167 RSV 350-1000 P 1/378 R

Komb.-Nr. 9 400 097 200

supersedes -  
company Fiat  
engine 8210.02

Values only apply to test nozzle-and-holder assembly  
1 688 901 019 and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $2,0 - 2,1$   
(1,95-2,15) mm (from BDC)  $\gamma 1.1$

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
	(2)					
1000	10,8+0,1	16,6-16,8	0,5 (0,9)			
350	6,9-7,1	1,5-2,1	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel mm 2		Intermediate rated speed 4 5 6			4 Control-lever deflection in degrees 7	Lower rated speed rev/min 8		Control rod travel mm 9		3 Torque control rev/min 10	Control rod travel mm 11
	mm	mm rev/min 3						mm	mm			
loose	800	0,3-1,0	-	-	-	ca. 25	350	6,5	1000	10,8-10,9	500	10,8-11,0
		x = 4,5					100	min. 19,0	400	11,2-11,4		
ca. 53 2a	9,8	1040-1050					350	6,9-7,1				
	4,0	1080-1110					390-450	= 2,0				
	1200	0,3-1,7										

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note changed to 1 rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
rev/min 1	cm <sup>3</sup> /1000 strokes 2		rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
1000	166,0-168,0 (163,0-171,0)	1040-1050*	500	127,5-133,5 (124,5-136,5)	100	270,0-290,0 (266,0-294,0)	-	-
					350	15,0-21,0 (10,0-24,0)		

Checking values in brackets

\* 1 mm less control rod travel than col 2

10.85

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J17

J17

# Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 MB 11,0 b  
8. Edition

En

**Testoil-ISO 4113**

PES 6P 100A 820LS 264 RQ300/1100 PA 327R (1)  
LS 264 Z RQ 300/1100 PAV 15287 (3)  
RQ 300/1100 PA 327 R (2)

supersedes 10.83  
company Daimler-Benz  
engine OM 407 h  
132,4kW (180PS) (1 u. ')  
154,5kW (210PS) (2)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke <sup>2,80-2,90</sup> (2,75-2,95) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	11,2-11,3	9,0 - 9,2	0,3(0,6)	12,7-12,8	10,9 - 11,1	
300	7,5-7,7	0,7 - 1,3	0,3(0,5)	7,5-7,7	0,8 - 1,2	

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

RQ - 327R (1)

Checking of slider PRG check ①		Full-load speed regulation Setting point ①				Idle speed regulation Setting point ④				Torque control ③		
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12	
500	13,8-14,6	500	14,0	10,2	1145-1160	300	7,6	100	min.9,6	-	-	
				4,0	1200-1230			300	7,5-7,7			
				1350	0 - 1,0			370-410	= 2,0			

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1145-1160 min<sup>-1</sup> 1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min	cm <sup>3</sup> /-1000 strokes	rev/min	rev/min	cm <sup>3</sup> /-1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes/mm
1	2	3	4	5	6	7
1100	90,0 - 92,0 (88,0 - 94,0)	500	-	-	100	135,0-155,0 (131,0-159,0)

Checking values in brackets

## B. Governor Settings

264 Z + RQ - 327R (2) MB 11,0 b - 2

Checking of slider		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point		Test specifications		Setting point		Test specifications		rev/min 11	Control rod travel mm 12
		rev/min 3	Control rod travel mm 4	rev/min 5	Control rod travel mm 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10		
500	13,8-14,6	500	14,0	11,7 4,0 1350	1145-1160 1200-1230 0 - 1,0	300	7,6	100 300 400	min.10,1 8,5-8,7 430 =2,0	-	-

Torque-control travel on flyweight assembly dimension a = - mm Speed regulation: At 1145-1160 min<sup>-1</sup> 1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Testoil-ISO 4113

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery	
rev/min 1	cm <sup>3</sup> /-1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /-1000 strokes 5	rev/min 6	cm <sup>3</sup> /100 strokes 7
1100	109,0 - 111,0 (107,0 - 113,0)	500	-	-	100	135,0 - 155,0 (131,0-159,0)

Checking values in brackets

## B. Governor Settings

..264 mit RQ..PAV 15287 (3)

Checking of slider		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point		Test specifications		Setting point		Test specifications		rev/min 11	Control rod travel mm 12
		rev/min 3	Control rod travel mm 4	rev/min 5	Control rod travel mm 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10		
600	13,0-14,0	600	13,5	10,2 4,0	1145-1160 1215-1245	300	7,5	100 300 370	min. 9,0 7,4-7,6 10=2,0mm		

Torque-control travel on flyweight assembly dimension a = - mm Speed regulation: At 1145-1160 min<sup>-1</sup> 1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery	
rev/min 1	cm <sup>3</sup> /-1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /-1000 strokes 5	rev/min 6	cm <sup>3</sup> /100 strokes 7
1100	90,0 - 92,0 (88,0 - 94,0)	500	-	-	100	135,0 - 155,0 (131,0-159,0)

Checking values in brackets

En

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DEE 7,6 a 3

1. Edition

En

PES 6 P 110 A 720 RS 361 RSV 600-1150 P 2/480

Komb.-Nr. 9 400 231 076

supersedes -  
company John Deere  
engine 6466 A  
170,0 kW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $2,75-2,85$  mm (from BDC) RW = 9,0 - 12,0 mm  
(2,70-2,90)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	12,0+0,1	16,3-16,5	0,4(0,75)			
600	5,4-5,6	2,2-2,8	0,4(0,75)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 25	600	5,0	1100	11,9-12,1
ca. 46	x =						600	5,4-5,6	950	12,0-12,4
	11,0	1145-1155					730-790	=2,0	850	12,3-12,4
2a	4,0	1220-1250								
	1380	0,3-1,7								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note changed to ) rev/min	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
rev/min	cm <sup>3</sup> /1000 strokes		rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1100	162,5-164,5 (159,5-167,5)	1145-1155*	850	170,0-176,0 (168,0-178,0)	100	160,0-180,0 at control 20,0-21,0 mm	0 -	-
					1200	55,0-65,0 (53,0-67,0)	-rod =	

Checking values in brackets

\* 1 mm less control rod travel than col 2

# Test Specifications Fuel Injection Pumps ② and Governors

PE 6 P 120 A 320 RS 372-1 Y RQ 250/1100 PA 417 R  
 Komb.-Nr. 0 401 846 473  
 Values only apply to test nozzle-and-holder assembly 019  
 1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes 5.85  
 company: DAF  
 engine: DKX 1160

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\begin{matrix} 2,80-2,90 \\ (2,75-2,95) \end{matrix}$  mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
850	11,4+0,1	18,4-18,6	0,5(0,90)			
250	6,5-6,7	1,4-2,0	0,8(1,2)			

Port closing difference = 0,9-1,0 mm between control-rod travel 9 mm and control-rod travel 21 mm

Adjust the fuel delivery from each outlet according to the values in .

## B. Governor Settings

Checking of slider PRG check rev/min 1		Control rod travel mm 2	Full-load speed regulation Setting point rev/min 3			Control rod travel mm 4	Test specifications Control rod travel mm 5	rev/min 6	Idle speed regulation Setting point rev/min 7		Control rod travel mm 8	Test specifications Control rod travel mm 10	rev/min 9	Torque control rev/min 11		Control rod travel mm 12
700	15,6-15,4	700	16,0	10,4 4,0 1350	1135-1150 1200-1230 max. 1,0	250	6,6	100 250 455-495 = 2,0	min.7,4 6,5-6,7	850 1100	11,4-11,5 11,3-11,5					

Torque-control travel on flyweight assembly dimension a = 0 mm Speed regulation: At 1135-1150 min<sup>-1</sup> 1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		cm <sup>3</sup> /1000 strokes 2	Control rod stop rev/min 3	Fuel delivery characteristics rev/min 4	cm <sup>3</sup> /1000 strokes 5	Starting fuel delivery Idle speed rev/min 6	Control rod travel cm <sup>3</sup> /1000 strokes/mm 7
LDA 850	0,7 bar 183,5-185,5 (180,5-188,5)	-	LDA 600	0, bar 135,5-137,5 (132,5-140,5)	100	315,0-355,0 (311,0-359,0) = 19,5 - 21,0 mm RW	

Checking values in brackets

# D. Adjustment Test for Manifold Pressure Compensator DAF 11,6 i 7

Test at n = **600** rev/min decreasing pressure - in bar gauge pressure  
 increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 P..RS 372-1Y + RQ..PA 417 R	0,70	0 0,37 0,33	11,4-11,5 10,0-10,1 11,0-11,1 10,4-10,8

**Notes**

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 11,6 k 2  
5. Edition

En

PE 6 P 120 A 320 RS 372-1 Y RSV 250-1100 P5/458 R

superseded by 5.84

Note VDT-I-420/114!

company DAF

Values only apply to test nozzle-and-holder assembly

engine DKX 1160

1 688 901 019 and fuel-injection test tubing 1 680 750 067

243 kW

Komb.-Nr. 0 401 876 261

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\begin{matrix} 2,8-2,9 \\ (2,75-2,95) \end{matrix}$  mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
850	11,4+0,1	18,3-18,6	0,5 (0,9)			
250	6,4-6,6	1,1-1,5	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

## B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control rev/min 10	Control rod travel mm 11
	mm 2	mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9		
Toose	800	0,3-1,0	-	-	-	ca. 24	250	6,0	850	11,6-11,7
	x = 5,0						250	6,4-6,6	400	11,6-11,8
							670-730 = 2,0		300	11,9-12,4
Ca. 54	10,4	1140-1150								
2a	4,0	1270-1300								
	1425	0,3-1,7								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note changed to ) rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
rev/min 1	cm <sup>3</sup> /1000 strokes 2		rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 850	0,7 bar 183,5-185,5 (180,5-188,5)	1140-1150*	LDA 600	0 bar 135,5-137,5 (132,5-140,5)	100	315,0-355,0 (311,0-359,0) = 19,5-21,0 mm RW	250	6,5

Checking values in brackets

\* 1 mm less control rod travel than col 2

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11.85

J23

J23

# D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 k 2

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure  
 increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 P..RS 372-1y + ..P5/458 R	0,37	0,70 0 0,30	11,0-11,1 11,4-11,5 10,0-10,1 10,3-10,7

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)



# Test Specifications Fuel Injection Pumps ② and Governors

PES 6 P 120 A 720 LS 388 RQ 250/1100 PA 509

Komb.-Nrn. 0 402 046 208 = MAN-Nr. 2-7083  
0 402 046 209 = MAN-Nr. 2-7066

supersedes 7.84  
company: MAN  
engine: D 2566 MK/MKF  
206 kW/2200 min<sup>-1</sup>

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke (2,95-3,15)  
3,00-3,10 mm (from BDC) Cyl. 6

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	11,4+0,1	17,8-18,2	0,5(0,9)			
250	6,2-6,4	1,2-1,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point ①				Idle speed regulation Setting point ①				Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	19,2-20,8	600	20,0	9,2	1145-1160	250	6,3	100	min.7,8	100	10,2-10,3
				4,0	1180-1210			250	6,2-6,4	975	10,4-10,6
				1400	0-1,0			350-390	=2,0	875	11,0-11,1
										750	11,4-11,5

Torque-control travel on flyweight assembly dimension a = 0,45 mm      Speed regulation: At 1145-1160 min<sup>-1</sup>      1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm <sup>3</sup> /-1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /-1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes/mm 7
LDA 750	0,7 bar 178,0-182,0 (175,0-185,0)		LDA 650	0,7 bar 174,0-180,0	100	215,0-235,0
			LDA 500	0,31 bar 134,0-140,0	250	12,0-18,0
LDA 1100	0,7 bar 163,0-169,0 (160,0-172,0)		LDA 500	0 bar 106,0-110,0	100-170 (80-190)	

Checking values in brackets

(Col.4-5 increase by ± 3 cm<sup>3</sup>)

10.85

# D. Adjustment Test for Manifold Pressure Compensator MAN 11,1 q 7

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
 increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel	
			mm	diminution difference (1)
PES 6 P..LS 388 +RQ..PA 509	0,70	0,43 0,31 0		11,4-11,5 10,9-11,1 10,3-10,4 9,2-9,3

Notes

(1) when n

rev/min and gauge pressure =

bar ( : maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 11,6 v

3. Edition

En

PE6P110 A 320 RS 407-1 RSV 275-1000 P5/458-3  
Komb.-Nr. 0 401 876 275

supersedes 7.84  
company DAF  
engine DKCL 1160  
155 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $2,8 - 2,9$  mm (from BDC) RW = 9,0 - 12,0 mm  
(2,75- 2,95)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	12,3+0,1	13,9-14,2	0,4 (0,75)			
275	7,0-7,2	0,9 - 1,4	0,45(0,75)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca.23	275	6,6	600	12,5-12,6
		x = 4,5					275	1,0-7,2	1000	11,1-11,3
ca.48	10,1	1040-1050					675-735 = 2,0		750	12,1-12,3
2a	4,0	1160-1190							850	11,4-11,7
	1325	0,3-1,7								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note changed to ) rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery 5 Idle		4a Idle stop	
rev/min 1	cm <sup>3</sup> /1000 strokes 2		rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA	0,7 bar	1040-1050*	LDA	0,7 bar	100	245,0-265,0 - (241,0-269,0)	0 -	-
600	139,0-142,0 (136,5-144,5)		1000	114,5-119,5 (111,5-122,5)	275	9,0-14,0 (6,5-16,5)		
			LDA	0 bar				
			600	136,5-139,5 (133,5-142,5)				

Checking values in brackets

\* 1 mm less control rod travel than col 2

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11.85

# D. Adjustment Test for Manifold Pressure Compensator

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure  
 increasing

DAF 11,6 v

-2-

Pump/governor	Setting	Measurement	Control rod travel	diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)	
PE6P..RS 407-1 +RSV..P5/458-3	0,70	0 0,28	12,3-12,4 12,1-12,2 12,2-12,3	

**Notes**

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

K4

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 11,6 v 4

1. Edition

En

PE 6 P 110 A 320 RS 407-1 RSV 275-1100 P 5 A 508-6  
Komb.-Nr. 0 401 876 306

supersedes  
company DAF  
engine DKTL 1160  
185 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke (2,75-2,95)

mm (from BDC) RW = 9,0-12,0 mm

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
850	12,3+0,1	14,1-14,3	0,4(0,75)			
275	7,0-7,2	1,0-1,5	0,45(0,75)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel mm 2		Intermediate rated speed 4 5 6			4 Control lever deflection in degrees 7	Lower rated speed rev/min 8		Control rod travel mm 9		3 Torque control rev/min 10	Control rod travel mm 11
	mm	mm rev/min					rev/min	mm	rev/min	mm		
Loose	800	0,3-0,7	-	-	-	ca. 18	275	6,6	850	12,5-12,6		
		X = 3,25					275	7,0-7,2	400	12,5-12,7		
							675-745	= 2,0	300	12,8-13,3		
ca. 47 2a	11,3	1135-1145										
	4,0	1275-1305										
	1350	0,3-1,4										

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note changed to ) rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
rev/min 1	cm <sup>3</sup> /1000 strokes 2		rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 850	0,7 bar 141,0-143,0 (138,5-145,5)	1135-1145*	LDA 600	0 bar 137,0-139,0 (134,5-141,5)	100	245,0-285,0 (241,0-289,0)	0	-
					275	10,0-15,0 (7,5-17,5)		

Checking values in brackets

\* 1 mm less control rod travel than col 2

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K5

# D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 v 4

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure  
 increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel: diminution difference mm (1)
PE 6 P..RS 407-1 + RSV..P5 A 508-6	0,70	0 0,30	12,3-12,4 12,0-12,1 12,1-12,2

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MWM 14.4 a 1  
2. Edition

En

PE 8 P 120 A 520/5 RS 427 RSUV 300-750 P 10 A 320  
Komb.-Nr. 0 401 878 108  
1- 8-5 -4 - 7 - 2 - 3 - 6  
0-30-90-120-180-210-270-300 ° ± 0,5 ° (± 0,75 °)

supersedes 1.83  
MWM  
company D 234-V 8  
engine

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke <sup>2,8-2,9</sup> (2,75-2,95) mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	9,7-9,8	15,9-16,1	0,5 (0,9)			
300	5,6-5,8	2,3-2,8	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever	Control rod travel		Intermediate rated speed			4 Control lever deflection in degrees	Lower rated speed		3 Torque control rev/min	Control rod travel mm
	mm	mm rev/min	4	5	6		rev/min	mm		
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 21	300	6,1	750	9,7-9,8
	x = 2,75						300	6,5-6,7	450	9,7-9,8
ca. 55	8,7	790-800					320-380 = 2,0		320	10,9-11,5
2a	4,0	800-830								
	950	0,3-1,7								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational speed limit Note changed to ) rev/min	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
rev/min	cm <sup>3</sup> /1000 strokes		rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
750	159,0-161,0 (156,0-164,0)	790-800*	-	-	-	-	-	-

Checking values in brackets

\* 1 mm less control rod travel than col 2

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11.85

K7

K7

# Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 MAN 11,4a1  
3. Edition

En

PES 6P 120A 320 LS 429 RQ 250/1100 PA 659  
Komb.-Nr. 0 402 046 264  
Values only apply to test nozzle-and-holder assembly  
1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes 10,83  
company: MAN  
engine: D 2566 MKUL  
235 kW/220 min<sup>-1</sup>

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke 3,0-3,1 mm (from BDC) Cyl. 6; RW = 9,0-12,0 mm  
(2,95-3,15)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	13,0+0,1	21,5-21,7	0,5(0,9)			
250	6,3-6,5	1,2-1,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in .

## B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3				Idle speed regulation Setting point rev/min 7				Torque control rev/min 11	
Control rod travel mm 2	Control rod travel mm 4	Control rod travel mm 5	Control rod travel mm 6	Control rod travel mm 8	Control rod travel mm 9	Control rod travel mm 10	Control rod travel mm 12				
600	19,2-20,8	600	20,0	10,3	1145-1160	250	6,4	100	min. 7,9	750	13,0-13,1
				4,0	1180-1210			250	6,3-6,5	1100	11,3-11,4
				1300	0-1,0			355-375 = 2,0		925	12,5-12,7
										1005	11,8-12,1

Torque-control travel on flyweight assembly dimension a = 0,55 mm Speed regulation: At 1145-1160 min<sup>-1</sup> 1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm <sup>3</sup> /-1000 strokes 2	cm <sup>3</sup> /-1000 strokes 5	cm <sup>3</sup> /-1000 strokes 7	Control rod travel mm 8				
LDA 750	1,0 bar 215,0-217,0 (212,0-220,0)	-		LDA 500	0,29 bar 134,0-140,0 (131,0-143,0)	100	205,0 - 225,0 (201,0-229)
1100	177,0-183,0 (174,0-186,0)			LDA 500	0 bar 111,0-113,0 (108,0-116,0)	250	12,0-18,0 (9,0-21,0)
650	206,0-212,0 (203,0-215,0)						

Checking values in brackets

11.85

Technisch SO 4113



# D. Adjustment Test for Manifold Pressure Compensator

MAN 11,4 a 1

-2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
 increasing

Pump/governor	Setting	Measurement	Control rod travel	diminution difference
	Gauge pressure - bar	Gauge pressure - bar	mm (1)	
PES 6P..LS 429 +Rq..PA 659	1,0	0	13,0-13,1	
		0,29	9,7-9,8	
		0,58	10,7-10,8	
			12,4-12,7	

**Notes**

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

K9

②

# Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MB 9,5 a

6. Edition

En

PES 5 P 110 A 820 LS 434

RQ 300/1100 PA 327-3

supersedes 5.84

company: Daimler-Benz

Komb.-Nr. 0 402 045 022

engine: OM 409

1 - 3 - 5 - 4 - 2

je 72° ± 0,5° (± 0,75°)

141 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\overset{3,00-3,10}{(2,95-3,15)}$  mm (from BDC) Cyl. 5

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,4+0,1	11,8-12,0	0,4(0,8)			
300 600	8,0-8,2 -	1,2-1,8 C, Sp. 4 u.5	0,4(0,7) 0,6(0,9)			

Adjust the fuel delivery from each outlet according to the values in 

## B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point ③				Idle speed regulation Setting point ⑤				Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	13,8-14,6	600	14,2	10,5 4,0	1145-1160 1175-1205	300	7,1	100 min.10,8 300 8,0-8,2 375-415=2,0		-	-

Torque-control travel  
on flyweight assembly dimension a =  mmSpeed regulation: At 1145-1160 min<sup>-1</sup>1 mm less control  
rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm <sup>3</sup> /-1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /-1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes/mm 7
1100	118,0-120,0 (115,0-123,0)	-	600	100,0-104,0 (97,0-107,0)	100	130,0-150,0 (126,0-154,0)

Checking values in brackets

11.85

K10

K10

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# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 11,6 u

5. Edition

En

PE 6 P 110 A 720 RS 441 RSV 250-1200 P 5/493  
Komb.-Nr. 0 401 876 252

supersedes 7.84  
company DAF  
engine DHS 825  
184 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\overset{2,8-2,9}{(2,75-2,95)}$  mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12,2+0,1	13,7-14,0	0,4(0,75)			
250	5,0-5,2	0,7-1,2	0,45(0,75)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees	Lower rated speed		3 Torque control	
	mm	mm rev/min	4	5	6		rev/min	mm		rev/min
1	2	3	4	5	6	7	8	9	10	11
rose	800	0,3-1,0	-	-	-	ca. 24	250	4,6	400	12,4-12,5
	X = 5,0						250	5,0-5,2	300	12,6-13,1
							525-585	=2,0		
ca. 52	11,2	1240-1250								
2a	4,0	1330-1360								
	1500	0,3-1,7								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
rev/min	cm <sup>3</sup> /1000 strokes	Note changed to 1 rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	
LDA 1000	0,7 bar 136,5-139,5 134,0-142,0	1240-1250*	LDA 600	0 bar 91,5-94,5 (89,0-97,0)	100	245,0-285,0 (241,0-289,0) =19,5- 21,0 mm RW	0 -	-	
					250	7,0-12,0 (4,5-14,5)			

Checking values in brackets

\* 1 mm less control rod travel than col 2

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# D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 II

-?-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
 increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel: mm (1) diminution difference
PE 6 P..RS 441 + RSV..P 5/493	0,70	0 0,36 0,27	12,2-12,3 10,1-10,2 11,7-11,8 10,8-11,2

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 11,6 u 7

1. Edition

En

PE 6 P 110 A 720 RS 441 RSV 250-1200 P5 A 509  
Komb.-Nr. U 401 876 301

supersedes  
company DAF  
engine DHS 825  
184 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke (2,75-2,95) mm (from BDC); RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1 000	12,2+0,1	13,7-13,9	0,4(0,75)			
250	5,0-5,2	0,7-1,2	0,45(0,75)			

Adjust the fuel delivery from each outlet according to the values in

TESTS 4115

## B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees	Lower rated speed		3 Torque control	
	mm	rev/min	4	5	6		rev/min	mm		rev/min
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-0,7	-	-	-	ca.24	250	4,6	1000	12,4-12,5
		x = 5,0					250	5,0-5,2	400	12,4-12,6
							535-595	= 2,0	300	12,7-13,2
ca.58	11,2	1240-1250								
2a	4,0	1330-1360								
	1500	0,3-1,4								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note changed to ) rev/min	3a Fuel delivery characteristics		Starting fuel delivery Idle 5		4a Idle stop	
rev/min	cm <sup>3</sup> /1000 strokes		rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA	0,7 bar	1240-1250*	LDA	0 bar	100	245,0-285,0	0 -	-
1000	137,0-139,0 (134,5-141,5)		600	92,0-94,0 (89,5-96,5)	250	(241,0-289,0) 7,0-12,0 (4,5-14,5)		

Checking values in brackets

\* 1 mm less control rod travel than col 2

11.85

# D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 u. 7

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure  
 increasing

Pump/governor	Setting	Measurement	Control rod travel	diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm	(1)
PE 6 P..RS 441 + RSV..P5 A 509	0,70	0		12,2-12,3
		0,36		10,3-10,4
		0,27		11,7-11,8
				10,6-11,0

**Notes**

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 11,6 u 2  
3. Edition

En

PE 6 P 110 A 720 RS 441-1 RSV 250-750 P 7/479-1

Komb.-Nr. 0 401 876 270

supersedes 7.84  
company DAF  
engine DHS 825 A

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $2,8 - 2,9$   
(2,75-2,95) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	11,6+0,1	14,3-14,6	0,4(0,75)			
250	4,8-5,0	0,9-1,3	0,45(0,75)			

Adjust the fuel-delivery from each outlet according to the values in

## B. Governor Settings

Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			Control-lever deflection in degrees 7	Lower rated speed		Torque control	
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
Loose	800	0,3-1,0	-	-	-	ca. 18	250	4,9	-	-
ca. 45		x = 4,0					250	4,8-5,0		
	10,6	790-795					250-290	= 2,0 **		
(2a)	4,0	810-825								
	950	0,3-1,7								

The numbers denote the sequence of the tests \*\* Set idle-speed auxiliary spring at 2 mm control-rod travel.

## C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop Test oil temp 40° C (104° F)		(6) Rotational-speed limit Note changed to ) rev/min	(3a) Fuel delivery characteristics		Starting fuel delivery (5)		(4a) Idle stop	
rev/min 1	cm <sup>3</sup> /1000 strokes 2		rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
750	142,5-145,5 (142,0-148,0)	790-795*	-	-	-	-	-	-

Checking values in brackets

\* 1 mm less control rod travel than col 2

11.85

**BOSCH**

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K15

KAS

# Test Specifications Fuel Injection Pumps ① and Governors

PES 6 P 110 A 820 LS 442 RQV 300-1100 PA 594-3  
Komb.-Nr. 0 402 046 233  
0 402 046 301

superseded 9.84  
company: Daimler-Benz  
OM 107  
engine: 162 kW (220 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke <sup>3,2-3,3</sup>  
(3,15-3,35) mm (from BDC) Cyl. 6;

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	10,9±0,1	11,3-11,5	0,4(0,8)			
300 600	8,0-8,2 -	1,4-2,0 C, Sp. 4 u. 5	0,4(0,7) 0,6(0,9)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1140	15,2-17,8	-	-	-	ca. 32	100 300	min. 9,7 8,0-8,2	250 530	1,0-1,3 3,9-4,2
ca. 60	9,9 4,0 1300	1140-1150 1175-1205 0-1,0				320-450			820 1100	5,5-5,8 8,1

Torque control travel s = - mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ④a	Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
1100	113,0-115,0 (110,0-118,0)	1140-1150*	600	90,0-94,0 (87,0-97,0)	100	130,0-150,0 (126,0-154,0)	-	-

Checking values in brackets

\* 1 mm less control rod travel than col. 2



# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 8,3 o  
3. Edition

En

PE 6 P 100 A 720 RS 447  
Komb.-Nr. 0 401 876 260

RSV 250-1200 P5/493  
P5A493

supersede 7.84  
company DAF  
engine DHT 825  
162 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke 3,2 - 3,3  
(3,15-3,35) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	11,4±0,1	11,9-12,1	0,35(0,6)			
250	5,3-5,5	0,8-1,2	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

① Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			④ Control-lever deflection in degrees 7	Lower rated speed		③ Torque control	
	mm 2	mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca.24	250	4,9	400	11,6-11,7
	x = 5,0						100	min. 7,0	300	11,8-12,3
ca.58	10,4	1240-1250					250	5,3 - 5,5		
②a	4,0	1325-1355					540-600	= 2,0		
	1530	0,3-1,4								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp 40°C (104°F)		⑥ Rotational-speed limit Note changed to ) rev/min 3	③a Fuel delivery characteristics		Starting fuel delivery ⑤		④a Idle stop	
rev/min 1	cm <sup>3</sup> /1000 strokes 2		rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1000	0,7 bar 118,5-120,5 (116,5-122,5)	1240-1250*	LDA 600	0 bar 92,5-96,5 (90,0-99,0)	100	210,0-230,0 (206,0-234,0)		-
					250	8,0-12,0 (5,5-14,5)		

Checking values in brackets

\* 1 mm less control rod travel than col 2

11.85

# D. Adjustment Test for Manifold Pressure Compensator

DAF 8,3 0

- 2 -

Test at n = **600** rev/min decreasing pressure - in bar gauge pressure  
 increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE6P..RS447 + RSV..P5/493	0,32		11,1 - 11,2
		0,70	11,4 - 11,5
		0	10,4 - 10,5
		0,23	10,5 - 10,9

**Notes**

(1) when n = rev/min and gauge pressure = bar ( = maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 PEN 7,0 i 2

1. Edition

En

PE 6 P 110 A 320 RS 465 RSV 200-1200 P 1 A 305

Komb.-Nr. 0 401 876 313

supersedes -  
company Volvo-Penta  
engine TD 61 G  
150,0 kW

ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\overset{3,0-3,1}{(2,95-3,15)}$  mm (from BDC) ; cyl. 1; RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
700	12,6+0,1	13,4-13,6	0,4 (0,75)			2,4-2,6 (2,2-2,9)
200	5,4-5,6	1,6-2,2	0,3 (0,6)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Degree of deflection of control lever	Upper rated speed rev/min		Intermediate rated speed			4 Control-lever deflection in degrees	Lower rated speed		3 Torque control	
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-0,7	-	-	-	ca. 13	200	5,0	-	-
	x = 4,3						200	5,4-5,6		
	280-340 = 2,0									
ca. 55	11,6	1240-1250								
2a	4,0	1270-1300								
	1440	0,3-1,4								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F).		6 Rotational-speed limit	3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
rev/min	cm <sup>3</sup> /1000 strokes	Note changed to ) rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
700	134,0-136,0 (131,0-139,0)	-	-	-	-	-	-	-

Checking values in brackets

\* 1 mm less control rod travel than col 2

10.85

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K19

h.43

# Test Specifications Fuel Injection Pumps ② and Governors

PES 6 P 120 A 720/3 LS 470-2 RQ 300/1100 PA 658-19  
Komb.-Nr. 0 402 036 044  
Values only apply to test nozzle-and-holder assembly  
1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes  
company: MAN  
engine: D 2866 LFZ/330  
243 kW/2200 min-1  
MAN-Nr. 2-7712

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\overset{2,8-2,9}{(2,75-2,95)}$  mm (from BDC) Cyl. 6

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	11,3+0,1	20,7-20,9	0,5(0,9)			
300	4,6-4,8	1,2-1,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Checking of slider PRG check rev/min 1		① Control rod travel mm 2		Full-load speed regulation Setting point rev/min 3		Control rod travel mm 4		④ Test specifications rev/min 6		Idle speed regulation Setting point rev/min 7		Control rod travel mm 8		⑤ Test specifications rev/min 9		Control rod travel mm 10		Torque control rev/min 11		Control rod travel mm 12	
600	19,2-20,8	600	20,0	9,5	1145-1160	300	4,7	100	min. 6,2	750	11,8-11,9							1100	10,5-10,6		
				4,0	1175-1205			300	4,6-4,8	875	11,6-11,8							950	11,0-11,3		
VH = max. 46°				1300	0 - 1,0			340-380	= 2,0												

Torque-control travel on flyweight assembly dimension a =  $\overset{0,50}{\text{mm}}$  Speed regulation: At  $\overset{1145-1160 \text{ min-1}}$  1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		② cm <sup>3</sup> /-1000 strokes 2		Control rod stop rev/min 3		③a		Fuel delivery characteristics rev/min 4		cm <sup>3</sup> /-1000 strokes 5		③b		Starting fuel delivery Idle speed rev/min 6		cm <sup>3</sup> /1000 strokes/mm 7		⑥ Control rod travel	
LDA	750	1,0 bar	207,0-209,0 (204,0-212,0)		-	LDA	500	0,38 bar	184,0-196,0 (181,0-199,0)	100	225,0-245,0 (221,0-249,0)								
	1100		199,0-203,0 (196,0-206,0)			LDA	500	0 bar	132,0-134,0 (129,0-137,0)										
	650		206,0-212,0 (203,0-215,0)																

Checking values in brackets

# D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
 increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PES 5 P..LS470-2 +RQ..PA 658-19	1,0	0 0,16 0,38	11,3-11,4 8,9-9,1 9,2-9,3 10,5-10,9

Notes

(1) when n = rev/min and gauge pressure = bar ( - maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps ① and Governors

PES 6 P 80 A 720 LS 478  
Komb.-Nr. 9 400 087 350

RQV 350/840-900 PA 726-1

supersedes -

company: Caterpillar  
engine: 3306 T

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $1,65-1,75$   
( $1,60-1,80$ ) mm (from BDC) RW =  $9,0-12,0$  mm

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
880	14,1+0,1	19,3-19,4	0,25(0,4)			
350	5,9-6,1	0,9-1,4	0,2(0,35)			

Adjust the fuel delivery from each outlet according to the values in .

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	925	15,2-17,2	-	-	-	ca.11	100	min.8,0	350	0,5-1,5
ca.66	13,1 4,0 1000	910-920 940-970 0-1,0					350 500 780-840 = 2,0	5,4-5,6 2,4-3,6 = 2,0	500 750 850 950	2,4-2,6 4,0-4,5 8,6

Torque control travel a = - mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2		Rotational-speed limitation intermediate speed 4a	Fuel delivery characteristics high idle speed 5b		Starting fuel delivery idle switching point 6		Torque-control travel 5	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
880	193,0-194,0 (191,5-195,5)	910-920 *	500	182,5-184,5 (180,5-186,5)	100	235,0-255,0 = 17,6-18,6 mm RW	-	-
					350	5,4-5,6 mm RW		

Checking values in brackets

\* 1 mm less control rod travel than col. 2

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 PEN 7,1 a

1. Edition

En

PE 6 P 110 A 320 RS 492 RSV 200-1200 P 1 A 305  
Komb.-Nr. 0 401 876 312

supersedes  
company Volvo-Penta  
TJD 71 G  
engine 165,0 kW

Testspec 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\frac{3,0-3,10}{(2,95-3,15)}$  mm (from BDC) ; cyl. 1; RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,1+0,1	12,5-12,7	0,4 (0,75)			2,4-2,6 (2,2-2,9)
200	5,4-5,6	1,6-2,2	0,3 (0,6)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-0,7	-	-	-	ca. 13	200	5,0	-	-
	x = 4,3						200	5,4-5,6		
	280-340	= 2,0								
ca. 55 2a	11,1	1240-1250								
	4,0	1270-1300								
	1440	0,3-1,4								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note changed to ) rev/min	3a Fuel delivery characteristics		Starting fuel delivery 5 Idle		4a Idle stop	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
700	125,0-127,0 (122,0-130,0)	1240-1250*	-	-	-	-	-	-

Checking values in brackets

\* 1 mm less control rod travel than col 2  
10.85

# Test Specifications Fuel Injection Pumps **(1A)** and Governors

**40**

WPP 001/4 PEN 7,1 b

1. Edition

En

PE 6 P 110 A 320 RS 492 RSV 650-750 P 4/421  
Komb.-Nr. 0 401 876 315

supersedes  
company Volvo-Penta  
engine TJD 71 G  
127,0 kW

Testspec 419

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $(2,95-3,15)$  mm (from BDC) ; cyl. 1; RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre tensioning (torque control valve) mm 6
700	12,6+0,1	13,4-13,6	0,4 (0,75)			2,4-2,6 (2,2-2,9)
650	4,9-5,1	1,6-2,0	0,3 (0,6)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca.33	650	6,1	-	-
	x = 2,7						650	6,0-6,2		
ca.39	11,6	750-755					660-700	=2,0		
2a	4,0	775-785								
	930	0,3-1,7								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational speed limit Note changed to ) rev/min	3a Fuel delivery characteristics		Starting fuel delivery 5 Idle		4a Idle stop	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
700	134,0-136,0 (131,0-139,0)	750-755*	-	-	-	-	-	-

Checking values in brackets

\* 1 mm less control rod travel than col 2



# Test Specifications Fuel Injection Pumps ① and Governors

PE 6 P 110 A 720 RS 3034 RQV 200-1200 PA 275 R  
Komb.-Nr. 0 401 846 709

supersedes 3.84  
company: Scania  
engine: DS 804

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke <sup>3,3-3,4</sup>  
(3,25-3,45) mm (from BDC) RW = 9,0 - 12,0 mm

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	12,3+0,1	11,1-11,3	0,5(0,7)			2,5 <sup>±</sup> 0,1
225	5,9-6,1	1,5-1,9	0,2(0,4)			(2,2-2,9)

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1200	15,2-17,8	-	-	-	ca. 9	100 225	min.7,4 5,9-6,1	150 500 850 200	0,6-0,8 3,8-4,4 5,9-6,1 8,4
ca. 62	11,3 4,0 1500	1240-1250 1370-1400 0-1,0					410-470=2,0			

Torque control travel a = - mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 600	0,9 bar 111,0-113,0 (109,0-115,0)	1240-1250*	LDA 1200	0,9 bar 118,5-123,5 (117,0-125,0)	100	190,0-240,0 = 20,0-21,0 mm RW	-	-
			LDA 500	0 bar 81,0-85,0 (79,0-87,0)				

Check ng values in brackets

\* 1 mm less control rod travel than col. 2

# D. Adjustment Test for Manifold Pressure Compensator

SCA 8,0 d

-2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
 increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 P..RS 3034 + RQV..PA 275 R	0,90	0 0,37 0,26	12,3-12,4 11,0-11,1 12,0-12,1 11,3-11,5

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

## S U P P L E M E N T A R Y I N F O R M A T I O N

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-J-400/116
- For sealing, see VDT-J-400/117
- Test specifications approved by Scania on 6.4.1984
- Start of fuel delivery-engine: 18° v. OT
- Firing sequence, engine : 1-5-3-6-2-4

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DEE 7,6 g 1

2. Edition

En

PES 6 P 110 A 720 RS 3083-1 RSV 400-1100 P 2/489  
Komb.-Nr. 9 400 231 084 P 2A489

superseded by 4.85  
company John Deere  
engine 6466 A  
161 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $3,45-3,55$   
 $(3,40-3,60)$  mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	10,7+0,1	13,8-14,0	0,4(0,75)			
425	5,1-5,3	1,1-1,6	0,45(0,75)			

Port closing mark cyl. 1 : 13° after port closing

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
	mm 2	mm rev/min 3	4	5	6		rev/min 8	mm 9	rev/min 10	mm 11
loose	800	0,3-1,0	-	-	-	ca. 25	425	4,7	1100	10,7-10,8
	x =						100	min. 19,0	700	11,9-12,2
ca. 49	9,7	1155-1165					425	5,1-5,3		
2a	4,0	1200-1230					580-640	= 2,0		
	1300	0,3-1,7								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note changed to ) rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery idle 5		4a Idle stop	
rev/min 1	cm <sup>3</sup> /1000 strokes 2		rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1100	0,9 bar 137,5-139,5 (134,5-142,5)	1155-1165*	LDA 700	0,9 bar 154,0-160,0 (151,0-163,0)	100	150,0-170,0 =20,0-21,0 mm RW	0	-
			LDA 500	0 bar 103,0-109,0 (101,0-111,0)	1200	47,0-57,0		

Checking values in brackets

\* 1 mm less control rod travel than col 2

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# D. Adjustment Test for Manifold Pressure Compensator

DEE 7,6 E 1

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
 increasing

Pump/governor	Setting	Measurement	Control rod travel	diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)	
FES 6 P..RS 3083-1 + REV..P2/489 F2A489	0,37	0,20	11,3 - 11,4	
			10,1 - 10,5	

**Notes**

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

L4

L4  
FD

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 STE 9,7 c

1. Edition

En

PE 6 P 110 A 721 RS 3102 RSV 250-1200 P 1 A 516  
Komb.-Nr. 0 401 866 700

supersedes -  
company Steyr  
engine WD 615.84  
191,0 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke <sup>2,8-2,9</sup> (2,75-2,95) mm (from BDC) <sup>1</sup>

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1200	12,7+0,1	15,4-15,7	0,4 (0,75)			
250	7,0-7,2	1,7-2,2	0,45(0,75)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

① Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			④ Control-lever deflection in degrees 7	Lower rated speed		③ Torque control	
	mm 2	mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-0,7	-	-	-	ca.22	250	6,6	-	-
	X =						250	7,0-7,2		
ca.66 ②a	11,7 4,0 1430	1240-1250 1310-1340 0,3-1,4					490-550 = 2,0			

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp 40°C (104°F)		⑥ Rotational-speed limit Note: changed to ) rev/min 3	③a Fuel delivery characteristics		Starting fuel delivery Idle		④a Idle stop	
rev/min 1	cm <sup>3</sup> /1000 strokes 2		rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1200	0,7 bar 154,0-157,0 (151,5-159,5)	1240-1250*	LDA 700	0,7 bar 150,0-154,0 (147,0-157,0)	100	190,0-220,0	-	-
			LDA 700	0 bar 102,0-105,0 (99,5-107,5)				

Checking values in brackets

\* 1 mm less control rod travel than col 2

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# D. Adjustment Test for Manifold Pressure Compensator STE 9,7 c - 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
 increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PE 6 P..RS 3102 + RSV..P 1 A 516	0,7	0 0,47 0,30	12,7-12,8 10,2-10,3 12,1-12,2 10,6-10,8

**Notes**

(1) when n =

rev/min and  
gauge pressure =

bar (= maximum full-load control rod travel)

L6

En  
L6

# Test Specifications Fuel Injection Pumps **(1A)** and Governors

**40**

WPP 001/4 PEN 10,0 f

2. Edition

En

PE 6 P 110 A 320 RS 3132  
Komb.-Nr. 0 401 876 738

RSV 200-1100 P 1/421-1

supersedes **7.85**

company **Volvo-Penta**  
engine **TID 100 K**  
**225 kW**

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $3,5-3,6$   
 $(3,45-3,65)$  mm (from BDC) RW =  $9,0-12,0$  mm

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	13,0±0,1	17,6-17,8	0,4 (0,75)			2,5±0,1
200	4,2-4,4	1,7-2,1	0,3 (0,6)			(2,2-2,9)

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

① Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			④ Control-lever deflection in degrees 7	Lower rated speed		③ Torque control	
	mm 2	mm/rev/min 3	4	5	6		rev/min 8	mm 9	rev/min 10	mm 11
loose	800	0,3-1,0	-	-	-	ca. 20	250	3,8	-	-
ca. 57 ②a	x = 4,0						250	4,2-4,4 = 2,0		
	11,6	1140-1150				245-305				
	4,0	1175-1205								
	1340	0,3-1,7								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp 40°C (104°F)		⑥ Rotational speed limit Note changed to ) rev/min 3	③a Fuel delivery characteristics		Starting fuel delivery ⑤		④a Idle stop	
rev/min 1	cm <sup>3</sup> /1000 strokes 2		rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
700	176,0-178,0 (173,0-181,0)	1140-1150*	-	-	-	-	-	-
					200	17,0-21,0 (14,5-23,5)		

Checking values in brackets

\* 1 mm less control rod travel than col 2

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# Test Specifications Fuel Injection Pumps ② and Governors

PE 10 P 110 A 320 LS 3818-10 RQ 300/1150 PA 437-4  
Komb.-Nr. 0 401 849 720

supersedes  
company: Daimler-Benz  
engine: OM 423  
261 kW

1- 9- 7- 6- 3 - 5 - 2 - 10- 9 - 4  
0-27-72-99-144-171-216-243-288-315° ± 0,5° (± 0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

## A. Fuel Injection Pump Settings

Port closing at prestroke  $4,0 - 4,1$  mm (from BDC) Cyl. 10  
(3,95-4,15)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,0+0,1	12,1-12,3	0,4(0,8)			
300	7,9-8,1	1,2-2,0	0,4(0,7)			
600 900	- Sect. C, Col. 4-5		0,6(0,9)			

Adjust the fuel delivery from each outlet according to the values in .

## B. Governor Settings

Checking of slider PRG check rev/min 1		Control rod travel mm 2	Full-load speed regulation Setting point rev/min 3			Control rod travel mm 4	Test specifications rev/min 5	Control rod travel mm 6	Idle speed regulation Setting point rev/min 7		Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	Torque control rev/min 11		Control rod travel mm 12
600	13,0-14,0	600	13,5	10,0	1190-1205	300	8,0	100	min.9,5	1150	11,0-11,1	600	11,5-11,7	900	11,4-11,6	
				4,0	1225-1255			300	7,9-8,1							
				1350	0-1,5			430-470	= 2,0							

Torque-control travel on flyweight assembly dimension a = 0,45 mm Speed regulation: At 1190-1205 min<sup>-1</sup> 1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm <sup>3</sup> /-1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /-1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes/mm 7
1150	121,0-123,0 (118,5-125,5)	-	600	107,0-111,0 (104,0-114,0)	100	140,0-160,0 (136,0-164,0)
			900	115,0-120,0 (112,0-123,0)		

Checking values in brackets



# Test Specifications Fuel Injection Pumps ① and Governors

PE 10 P 110 A 320 LS 3818-11 RQV 300-1150 PA 486-2

Komb.-Nr. 0 401 849 706

1- 8- 7- 6- 3 - 5 - 2 - 10- 9 - 4

0-27-72-99-144-171-216-243-288-315° ± 0,5° (± 0,75°)

supersedes.

company: Daimler-Benz

engine: OM 423

261 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

## A. Fuel Injection Pump Settings

Port closing at prestroke  $4,0-4,1$  mm (from BDC) Cyl. 10 RW = 9,0 - 12,0 mm  
(3,95-4,15)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	12,2+0,1	12,6-12,8	0,4(0,8)			
300	8,5-8,7	1,4-2,2	0,4(0,7)			
600	-	C, Sp. 4+5	0,6(0,9)			
900	-					

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1190	15,2-17,8	-	-	-	ca. 18	100	min. 10,2	300	1,6-1,8
ca. 52	11,2 4,0 1400	1190-1200 1235-1265 0-1,0					300 430-490 = 2,0	8,5-8,7	800 1200 1260	5,8-6,2 8,2-8,4 10,0

Torque control travel a = 0,5 mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
1150	126,0-128,0 (123,5-130,5)	1190-1200*	600	110,0-114,0 (107,0-117,0)	100	140,0-160,0 (136,0-164,0)	1150	12,2+0,1
			900	118,0-123,0 (115,0-126,0)			600	12,5+0,1
							900	12,4+0,2

Checking values in brackets

\* 1 mm less control rod travel than col. 2

# Test Specifications Fuel Injection Pumps ① and Governors

PE 10 P 120 A 320 LS 3824-10 RQV 300-1150 PA 724-2  
1- 8- 7- 6- 3 - 5 - 2 - 10- 9 - 4  
0-27-72-99-144-171-216-243-288-315<sup>°</sup> ± 0,5<sup>°</sup> (± 0,75<sup>°</sup>)

supersedes -  
company: Daimler-Benz  
engine: OM 423 LA  
368 kW

Values only apply to test nozzle-and-holder assembly  
1 688 901 019 and fuel-injection test tubing 1 680 750 067

Komb.-Nr. 0 401 849 719

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

## A. Fuel Injection Pump Settings

Port closing at prestroke <sup>4,0-4,1</sup>  
(3,95-4,15) mm (from BDC) Cyl. 10

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,7+0,1	18,0 - 18,2	0,5 (0,8)			
300	5,0-5,2	1,6 - 2,2	0,8 (1,2)			
750	-	C, Sp. 4 u. 5	0,8 (1,2)			
500	-					

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1150	15,2-17,8	-	-	-	ca. 20	100	min. 6,3	300	1,0-1,2
ca. 54	10,7 4,0 1300	1190-1200 1245-1275 0 - 1,5				300-400	300	4,8-5,0	500 700 1100 1260	4,0-4,5 5,3-5,8 7,4-7,8 10,0

Torque control travel a = - mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 1150	0,7 bar 180,0-182,0 (177,0-185,0)	1190-1200 *	LDA 750	0,7 bar 184,0-188,0 (181,0-191,0)	100	150,0-170,0 (146,0-174,0)	-	-
			LDA 500	0 bar 138,0-140,0 (135,0-143,0)				

Checking values in brackets

\* 1 mm less control rod travel than col 2

# D. Adjustment Test for Manifold Pressure Compensator MB 18,3 e 1

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
 increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 10P..LS3824-10 + RQV..PA 724	0,70	0	11,7 - 11,8
		0,39	10,0 - 10,2
		0,52	10,4 - 10,6
			11,2 - 11,3

Notes

(1) when n = rev/min and gauge pressure = bar ( - maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps ① and Governors

PE 12 P 120 A 520/4 LS 3828 RQV 250-1150 PA 668-7  
 1- 5- 9- 8- 3 - 4 - 11- 10- 2 - 6 - 7 - 12  
 0-15-60-75-120-135-180-195-240-255-300-315° ± 0,5° (±0,75°)  
 Values only apply to test nozzle-and-holder assembly  
 1 688 901 019 and fuel-injection test tubing 1 680 750 067 Komb.-Nr. 0 401 840 725

supersedes -  
 company: MAN  
 engine: D 2842 LE  
 560 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

## A. Fuel Injection Pump Settings

Port closing at prestroke  $4,2 - 4,3$  mm (from BDC) Cyl. 12  
 (4,15-4,35)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1150	11,0+0,1	20,0-20,2	0,5(0,9)			
250	6,9-7,1	1,7-2,3	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in .

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1150	15,2-17,8	-	-	-	ca. 12	100	min.8,5	350	2,0-2,5
ca. 66	10,9	1190-1200					250	6,9-7,1	900	6,7-6,9
	4,0	1320-1350					400-460=2,0		1150	8,6
	1450	0-1,0								

Torque control travel a = - mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1150	200,0-202,0 (197,0-205,0)	1190-1200*	-	-	100	190,0-210,0 (186,0-214,0)	-	-

Checking values in brackets

\* 1 mm less control rod travel than col. 2

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 14,2 d 2

1. Edition

Test oil ISO 4113

PE 8 P 120 A 920/4 LS 7008 X RQV 200-950 PA 547-6  
 Komb.-Nr. 0 402 648 815  
 1-2-7-3-4-5-6-8 je 45° ± 0,5° (+ 0,75°)  
 Values only apply to test nozzle-and-holder assembly  
 1 688 901 019 and fuel-injection test tubing 1 680 750 015

supersedes -  
 company: Saab-Scania  
 engine: DSC 14 02

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\begin{matrix} 4,5-4,6 \\ (4,45-4,65) \end{matrix}$  mm, (from BDC) ; RW = 6,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	13,1+0,1	18,7 - 18,9	0,7 (1,0)			3,3 <sup>±</sup> 0,1 (3,0-3,5)
225	4,5-4,7	1,4 - 1,8	0,3 (0,6)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	990	15,2-17,8	-	-	-	ca. 10	100	min. 5,9	200	1,0-1,2
ca. 60	12,1 4,0 1250	990-1000 1110-1140 0 - 1,0					225 310-370	4,4-4,6 =2,0	450 700 950	3,3-3,8 5,0-5,2 7,9

Torque control travel = - mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery Control rod stop Test oil temp. 40°C (104°F) rev/min 1		Control rod stop cm <sup>3</sup> /1000 strokes 2		Rotational speed limitation intermediate speed rev/min 3		Fuel delivery characteristics high idle speed rev/min 4		cm <sup>3</sup> /1000 strokes 5		Starting fuel delivery idle switching point rev/min 6		cm <sup>3</sup> /1000 strokes 7		Torque-control travel rev/min 8		Control rod travel mm 9	
LDA 700	0,9 bar 187,0-189,0 (184,0-192,0)	990-1000 *		LDA 950	0,9 bar 181,0-189,0 (179,0-191,0)	100	250,0-300,0 =20,0-21,0 mm RW	-	-								
				LDA 500	0 bar 156,0-160,0 (154,0-162,0)	225	4,4-4,6 mm RW										

Checking values in brackets

\* 1 mm less control rod travel than col. 2

# D. Adjustment Test for Manifold Pressure Compensator

SCA 14,2 d 2

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting	Measurement	Control rod travel
	Gauge pressure = bar	Gauge pressure = bar	diminution difference mm (1)
PE8P..LS 7008 X +RQV..PA 547-6	0,90	0	13,1 - 13,2
		0,24	11,4 - 11,6
			12,1 - 12,3

**Notes**

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

## S U P P L E M E N T A R Y I N F O R M A T I O N

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-J-400/116
- For sealing, see VDT-J-400/117
- Test specifications approved by Scania on 3.5.1985
- Start of fuel delivery-engine: 22° v. OT
- Firing sequence, engine : 1-5-4-2-6-3-7-8

\*\* Due to smoothing of the sealing edge, the spring tension with a new delivery-valve holder must be adjusted 70 2,9 - 3,1 mm.

# Test Specifications Fuel Injection Pumps ① and Governors

PE 8 P 120 A 920/4 LS 7108 RQV 200-950 PA 736  
 Komb.-Nr. 0 402 648 813  
 1-2-7-3-4-5-6-8 je 45° ± 0,5° (± 0,75°)  
 Values only apply to test nozzle-and-holder assembly  
 1 688 901 019 and fuel-injection test tubing 1 680 750 015

supersedes -  
 company: Scania  
 engine: DSC 14 01

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke <sup>4,5-4,6</sup> (4,45-4,65) mm (from BDC) : RW = 6,0-8,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	14,2+0,1	20,1-20,3	0,7 (1,0)			3,3 ± 0,1
225	4,6-4,8	1,4-1,8	0,3 (0,6)			(3,0 - 3,5)

Port closing difference between control-rod travel 8 mm and max. 1,65-2,35° camshaft

Adjust the fuel delivery from each outlet according to the values in

Test Specification

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	990	15,2-17,8	-	-	-	ca. 10	100	min. 5,9	150	0,6-0,8
ca. 60	13,2 4,0 1250	990-1000 1115-1145 0-1,0					225 310-370=2,0	4,4-4,6	420 680 950	3,1-3,3 4,8-5,0 7,4

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5b	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 700	0,9 bar 201,0-203,0 (198,0-206,0)	990-1000*	LDA 950	0,9 bar 194,0-202,0 (192,0-204,0)	100	250,0-300,0 =20,0-21,0 mm RW	-	-
			LDA 500	0 bar 156,0-160,0 (154,0-162,0)				

Checking values in brackets

\* 1 mm less control rod travel than col. 2

# D. Adjustment Test for Manifold Pressure Compensator SCA 14,0 g

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
 increasing

Pump/governor	Setting	Measurement	Control rod travel
	Gauge pressure = bar	Gauge pressure = bar	mm (1) diminution difference
PE 8 P..LS 7108 + RQV..PA 736	0,90	0 0,35 0,24	14,2-14,3 11,5-11,6 13,6-13,7 12,0-12,2

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

## S U P P L E M E N T A R Y I N F O R M A T I O N

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-J-400/116
- For sealing, see VDT-J-400/117
- Test specifications approved by Scania on 3.5.1985
- Start of fuel delivery-engine: 22° v. OT
- Firing sequence, engine : 1-5-4-2-6-3-7-8 die

\*\* Due to smoothing of the sealing edge, the spring tension with a new delivery-valve holder must be adjusted 70 2,9 - 3,1 mm.



# Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 MB 12,0 a

1. Edition

En

PES 6 P 120 A 720 LS 7114 RQ 300/950 PA 774  
Komb.-Nr. 0 402 746 806

supersedes -  
company: Daimler-Benz  
engine: OM 447 LA  
350,0 kW

Values only apply to test nozzle-and-holder assembly  
1 688 901 019 and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $5,2-5,3$   
 $(5,15-5,35)$  mm (from BDC)  $Cy1.6$ ; RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	13,9±0,1	22,7-22,9	0,5(0,9)			
300	6,1-6,3	1,4-2,0	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

## B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3				Idle speed regulation Setting point rev/min 7				Torque control rev/min 11	
Control rod travel mm 2	Control rod travel mm 4	Control rod travel mm 5	Control rod travel mm 6	Control rod travel mm 8	Control rod travel mm 9	Control rod travel mm 10	Control rod travel mm 12	Control rod travel mm 12	Control rod travel mm 12	Control rod travel mm 12	
650	19,2-20,8	650	20,0	13,1	995-1010	300	6,2	100	min. 7,8	950	14,1-14,3
VH =	max. 46°			4,0	1065-1095			300	6,1-6,3	850	14,7-14,9
				1150	0-1,5			380-420	±2,0		

Torque-control travel on flyweight assembly dimension a =  mm Speed regulation: At  945-960 min<sup>-1</sup> 1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6		
cm <sup>3</sup> /-1000 strokes 2	cm <sup>3</sup> /-1000 strokes 5	cm <sup>3</sup> /-1000 strokes 7	Control rod travel mm 3a	Control rod travel mm 3b	Control rod travel mm 6	Control rod travel mm 7	Control rod travel mm 6	
LDA 600	0,85 bar 227,0-229,0 (224,0-232,0)		-	LDA 700	1,5 bar 243,0-247,0 (240,0-250,0)		100	230,0-250,0 (226,0-254,0)
LDA 950	1,5 bar 232,0-235,0 (229,0-238,0)			LDA 500	0 bar 135,0-137,0 (132,0-140,0)			

Checking values in brackets

## D. Adjustment Test for Manifold Pressure Compensator

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel
			diminution difference mm (1)
PES 6 P..LS 7114 + RQ..PA 774	0,85	0,25	13,9-14,1
		0,50	10,6-10,8
		0,98	12,7-12,9
		1,10	13,6-13,8
			13,2-13,4

### Notes

(1) when n =

rev/min and  
gauge pressure =

bar (= maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps ② and Governors

PE 6 P 120 A 720 RS 7118 RQ 300/1100 PA 784  
 Komb.-Nr. 0 402 646 830  
 Values only apply to test nozzle-and-holder assembly  
 1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes  
 company: Steyr  
 engine: WD 615,68  
 222 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Test ISO 4113

## A. Fuel Injection Pump Settings

Port closing at prestroke <sup>5,0-5,1</sup> (4,95-5,15) mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	12,7+0,1	18,1-18,3	0,5(0,9)			3,3 ± 0,1
300	4,5-4,7	1,5-2,1	0,8(1,2)			(3,0 - 3,5) **

\*\* Due to smoothing of the sealing edge, the initial spring tension with a new delivery-valve holder must be adjusted to 2,9-3,1 mm

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Test specifications Control rod travel mm 5	Test specifications rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	15,6-16,4	600	16,0	11,7	1145-1160	300	4,6	100	min.6,0	-	-
VH = ca. 46°				4,0 1300	1205-1235 0-1,0			300 360-400 = 2,0			

Torque-control travel on flyweight assembly dimension a = 0,30 mm Speed regulation: At 1145-1160 min<sup>-1</sup> 1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm <sup>3</sup> /-1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /-1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes/mm 7
LDA 1100	1,2 bar 181,0-183,0 (178,0-186,0)	-	LDA 700	1,2 bar 190,0-196,0 (187,0-199,0)	100	225,0-255,0
			LDA 700	0 bar 143,0-145,0 (140,0-148,0)		

Checking values in brackets

# D. Adjustment Test for Manifold Pressure Compensator

STE 9,7 d

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
 increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PE 6 P..RS 7118 + RQ..PA 784	1,20	0 0,57 0,36	12,7-12,8 10,3-10,4 12,1-12,2 10,8-11,0

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 11,7 c

1. Edition

En

PES 6 P 120 A 720 LS 7120 RSV 350-1100 POA 518  
Komb.-Nr. 0 402 776 800  
Values only apply to test nozzle-and-holder assembly  
1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes -  
company Daimler-Benz  
OM 427 A  
engine 206 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $5,2-5,3$  (5,15-5,35) mm (from BDC) RW = 9,0 - 12,0 mm

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1080	13,2+0,1	19,6-19,8	0,5 (0,9)			
350	5,5-5,7	1,4-2,0	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
	mm 2	mm rev/min 3	4	5	6		rev/min 8	mm 9	rev/min 10	mm 11
loose	800	0,3-1,0	-	-	-	ca. 25	350	5,6		
		X = 3,5					350	5,5-5,7		
ca. 52 2a	12,2	1130-1140						**		
	4,0	1200-1230								
	1350	0 - 1,7								

\*\* Set idle-speed auxiliary spring at 2 mm control-rod travel, The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note changed to ) rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
rev/min 1	cm <sup>3</sup> /1000 strokes 2		rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1080	0,75 bar 196,0-198,0 (193,0-201,0)	1130-1140 *	LDA 750	0,75 bar 199,0-203,0 (196,0-206,0)	100	170,0-190,0 (166,0-194,0)	0 -	-
			LDA 500	0 bar 143,0-145,0 (140,0-148,0)				

Checking values in brackets

\* 1 mm less control rod travel than col 2

**BOSCH**

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# D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
 increasing

MB 11,7 c - 2 -

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 5 P..LS 7120 +RSV .. POA 518	0	0,10 0,20	11,2-11,4 11,8-12,0 12,6-12,8

**Notes**

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps ② and Governors

En

PE 8 P 120 A 320 LS 7801 RQ 300/1050 PA 717  
 Komb.-Nr. 0 402 648 812  
 1-8-7-2-6-3-5-4 je 45 ° ± 0,5 ° (± 0,75 °)  
 Values only apply to test nozzle-and-holder assembly  
 1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes -  
 company: Daimler-Benz  
 engine: OM 442 LA  
 320 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke (5, 15-5,35) mm (from BDC) cyl.8; RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	14,8+0,2	21,3-21,6	0,5(0,9)			
300	6,2-6,6	1,6-2,2	0,6(1,0)			
1050	-					
850	-	C, Sp. 4 u. 5	0,8(1,2)			
500	-					

Adjust the fuel delivery from each outlet according to the values in

TEST ISO 4113

## B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Test specifications Control rod travel mm 5	rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	19,2-20,8	600	20,0	14,5	1095-1110	300	6,3	100 min. 7,9		1050	15,5-15,7
				4,0	1160-1190			300 6,2-6,4		850	15,9-16,1
	VH = max. 46 °			1300	0 - 1,5			380-420 = 2,0			

Torque-control travel on flyweight assembly dimension a = 0,90 mm      Speed regulation: At 1095-1110 min<sup>-1</sup>      1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm <sup>3</sup> /-1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /-1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes/mm 7
LDA 600	0,68 bar 213,0-216,0 (210,0-219,0)	-	LDA 850	1,15 bar 244,0-248,0 (241,0-251,0)	100	200,0-220,0 (196,0-224,0)
LDA 1050	1,15 bar 232,0-234,0 (229,0-237,0)		LDA 500	0 bar 145,0-147,0 (142,0-150,0)		

Checking values in brackets

### D. Adjustment Test for Manifold Pressure Compensator

Test at n = **600** rev/min decreasing pressure - in bar gauge pressure  
 increasing

Pump/governor	Setting	Measurement		Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure =	bar	mm (1)
PE8P..LS 7801 +RQ.. PA 717	0,68	0,31		14,8-15,0
		0,47		12,2-12,4
		0,82		13,8-14,0
		0,95		15,1-15,2
		1,10		15,5-15,7
				16,0-16,1

**Notes**

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)